The Lumleian Lectures

ON

SOME PROBLEMS IN CONNEXION WITH APHASIA AND OTHER SPEECH DEFECTS.

Delivered before the Royal College of Physicians of London,

BY H. CHARLTON BASTIAN, M.A., M.D. LOND., F.R.S.,

CENSOR OF THE COLLEGE; PHYSICIAN TO UNIVERSITY COLLEGE HOSPITAL AND TO THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.

LECTURE I.[1]

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MR. PRESIDENT AND GENTLEMEN,—The modern interest in, and development of knowledge concerning, aphasia and other speech defects dates from the publication of certain memoirs by Broca, some six and thirty years since, when he attempted to localise what he termed the "faculty of articulate language" in a limited convolutional region of the left cerebral hemisphere. The publication of his cases and conclusions formed the starting point for a whole new series of investigations, whose result has been a remarkable development in our knowledge of the localisation of functions in the cerebral cortex, while the discussions to which these investigations have given rise have materially helped to lead to a better understanding of the working of the complex cerebral mechanisms needed for the carrying on of speech and thought. We are thus at the present day capable of dealing with the subject of speech defects from a much broader basis of discovered facts, as well as with a greater critical insight than was at all possible at, or even long after, the time when Broca wrote his famous memoir. Very much, however, remains to be discovered before the many differences of opinion that exist concerning obscure and complicated points in connexion with the nature and exact mode of production of speech defects are likely to be set at rest.

The special tendency of aphasia and other forms of speech defect to be associated with disease of the left rather than of the right hemisphere is now a well recognised fact. This holds good for right-handed but not as a rule for left-handed persons. In these latter aphasic defects are produced by disease in similar parts of the right cerebral hemisphere. It is believed, therefore, that motor incitations for acts of speech are accustomed to pass off in the main from one cerebral hemisphere, and that whether this shall be from the left or from the right hemisphere becomes determined principally by the increased dominance, or slightly earlier development of one of them, brought about more or less remotely in association with right- or with left-handedness.

Although we shall here deal with what are known as "acquired defects of speech"—that is, such defects as may have supervened after the power of speaking has been attained—still, it seems desirable that a very brief reference should be made as a preliminary to defects of speech resulting either from congenital disease or from diseases occurring at some date prior to the manifestation of articulate speech. The most important of these congenital defects is deafness, which of itself entails mutism, the individuals thus afflicted being known as "deaf mutes." It must be borne in mind, however, that this mutism or dumbness may also be brought about by absolute deafness occurring from any cause after birth, but before the child has begun to talk, or even after it has learned to talk, up to the fifth or the seventh year. In cases of the latter type the child soon (when left without the customary guidance in articulatory acts derived through the sense of hearing) forgets how to speak and becomes dumb. In addition to this class of cases there are also those of congenital idiotcy without deafness, in which the child never learns to talk. There are also other cases, allied to the last, in which, owing to some intracranial lesion occurring either before, during, or soon after birth, the brain becomes so damaged as to arrest the development of the child's mental as well as of its motor powers. In some of the less severe examples of this type (now commonly spoken of as "birth palsies") that have come under my observation speech has been merely deferred—perhaps till the fourth, fifth, or even the sixth year—and then after a time has become established in a natural manner. In other cases the occurrence of epileptic fits seems to be the retarding cause.

One of the most remarkable cases known to me of deferred speech in connexion with the occurrence of epileptic attacks happened in one of my own patients. In the year 1877 I was consulted concerning the health of a boy who was then twelve years old, and had been subject to epileptic fits at intervals. The first of these fits occurred in infancy, when the patient was about nine months old. Towards the end of the second year the fits seemed to have ceased, the hearing was (as it had been) good, and the child appeared to be of average intelligence—to be well, in fact, in all respects except that he did not talk. When nearly five years old the little fellow still had not spoken a single word, and about this time two eminent physicians were consulted in regard to his "dumbness." But before the expiration of another twelve months, as both his mother and father assured me, on the occasion of an accident happening to one of his favourite toys, he suddenly exclaimed, "What a pity!" though he had never previously spoken a single word. The same words could not be repeated, nor were others spoken, notwithstanding all entreaties, for a period of two weeks. Thereafter the boy progressed rapidly, and speedily became most talkative. When seen by me he spoke in an ordinary manner without the least sign of impediment or defect.

Such a sudden beginning to speak for the first time without previous prolonged trials and failures is a matter vastly transcending in importance the sudden resumption of speech when it has been for a time suspended in consequence of brain disease. No explanation of such a fact seems possible except on the supposition that speech has now become a truly automatic act for human beings, and that if children do not speak at birth this is in the main due to the circumstance that their nervous systems are still too immature. No such untaught acts of speech would, however, be possible unless development had been taking place in a normal manner and unless the auditory sense and intelligence had been unaffected. The occurrence of some emotion may in such a case afford a stronger stimulus, under the influence of which the duly organised speech mechanisms become called into action.

Some curious cases of congenital speech defect were described by Hadden to which the term "idioglossia" has been applied. These children have to a certain extent a language of their own, so that when asked to repeat phrases they make use of definite sounds of their own instead of those proper to the words that should be employed. The sounds which they substitute are said to be always the same for the same words. Some of these patients seem to have been capable of writing correctly from dictation, and they have also shown a fair amount of general intelligence.

THE VARIOUS KINDS OF WORD MEMORY.

According to Sir William Hamilton, "Memory strictly so denominated is the power of retaining knowledge in the mind, but out of consciousness. I say, retaining knowledge in the mind but out of consciousness, for to bring the *retentum* out of memory into consciousness is the function of a totally different faculty (recollection). . . . It is not enough that we possess the faculty of acquiring knowledge and of retaining it in the mind but out of consciousness; we must further be endowed with a power of recalling it out of consciousness into consciousness—in short, a reproductive power (recollection). This reproductive power is governed by the laws which govern the succession of our thoughts—the laws, as they are called, of mental association." This definition of memory implies the notion of an organic change taking place in definite nerve elements on the occurrence of each sensory or intellectual process—that is, the notion of a permanent nervous modification of some kind, plus the possibility of its renewal in more complete form from time to time. We may therefore suppose that on fitting occasions, by the intervention of associational activity, there will be revival in more complete form of something like the original molecular

[1] Lectures II. and III. will be delivered on April 6th and 8th respectively.

activity in the nervous elements concerned with the primary perceptional or intellectual process of this or that kind. It is not essential that the memorial revival of the sensory impression or of the intellectual process should after multitudinous repetitions be associated with any distinct conscious phasis. What Sir William Hamilton termed the *retentum* may, indeed, be revived as a mere unconscious nerve action—a link in a perceptive process or in a chain of thought represented merely (as John Stuart Mill put it) by "certain organic states of the nerves." This latter consideration is especially worthy of note from the point of view of the importance of revived kinæsthetic impressions for the guidance of movements, seeing that their revival may be unattended by any distinct conscious phasis; and much the same thing may often be said concerning that memorial recall of words in the auditory centre which immediately precedes speech.

From what has already been said it is evident that "loss of recollection" by no means implies nor is it to be taken as synonymous with "loss of memory." For instance, a patient may be unable to recollect words—that is, spontaneously revive them—for ordinary speech when his memory for such words, nevertheless, exists unimpaired, as may be shown by the fact that the patient is able at once to repeat the words in question when he hears them pronounced or sees them written. His defect, therefore, may consist in a mere lowered activity of the auditory word-centre, in which words are primarily revived during thought. "Loss of recollection" may, in fact, depend upon one or other of two causes: either (*a*) upon some diminished functional activity—that is, diminished readiness to be roused—in the central nerve mechanisms in which the *retentum* is, so to speak, stored or rendered possible of revival; or else (*b*) upon some defect in this or that set of commissural fibres (associational channels). "Loss of memory," however, in the strict sense of the term implies disease of, or serious damage to, the central nerve units in which the particular *retentum* is stored up or registered.

Although it is important from a scientific point of view to make such a distinction as has been above pointed out, it will be found both convenient and practical to let the term "amnesia" stand for loss of recollection as well as loss of memory of this or that kind.

From what has been said it follows, that all cases of amnesia (in the broad sense of the term) ought, from an anatomical or localising point of view, to be divided into two generic groups: (*a*) cases in which there is centric defect (either structural or of marked functional type), with which there will often be loss of memory of words as well as loss of recollection; and (*b*) cases in which there is merely commissural defect (mostly structural), with which there may be loss of recollection of words, but no necessary loss of word-memory. It will be one of my objects in the present lectures to dwell upon the fact (which I pointed out some ten years ago) that it is often in the case of speech defects extremely difficult, if not impossible, from clinical evidence alone to decide whether the underlying lesion or default leading to a particular kind of amnesia be centric or commissural in seat. And yet from the point of view of the localisation of the lesion such a decision may be a matter of much importance, seeing that if the lesion were centric we should look for it in one part of the brain, while if it were commissural it might be found in a region comparatively remote therefrom.

In the case of words there are three distinct kinds or physiological types of memory to be considered—one of them existing in two forms, so as to make four varieties in all. These varieties of verbal memory are as follows:—1. Auditory memory: the memory of the sounds of words—that is, of the auditory impressions representative of different words. 2. Visual memory: the memory of the visual appearances (printed or written) of words—that is, of the visual impressions corresponding with different words. 3. Kinæsthetic memory.[2]—(*a*) the memory of the different groups of sensory impressions resulting from the mere movements of the vocal organs during the utterance of words (impressions from muscles, mucous membranes, and skin)—that is, of the kinæsthetic impressions corresponding with the articulation of different words, which for the sake of brevity I have proposed to speak of as "glosso-kinæsthetic" impressions; and (*b*) the memory of the different groups of sensory impressions emanating from muscles, joints, and skin, during the act of writing individual letters and words—that is of the kinæsthetic impressions corresponding with the writing of different letters and words, which I have for similar reasons proposed to speak of as "cheiro-kinæsthetic" impressions.[3]

The organic seat of each of these four different kinds of word-memory is in relation with its own set of afferent fibres; and the several centres must also be closely connected with one another by commissural or associational fibres, so that the memory of a word or the recollection of a word in one or other of these modes doubtless involves some amount of simultaneously revived activity in one or two of the other word-centres.

The relative intensity or importance (in the process of recollection of words for ordinary speech) of the memorial revival in each of these centres is probably subject to more or less marked variations in different individuals. In the majority of persons, as I pointed out in 1869, the revival of words in the auditory centre is the most potential process, and that which occurs first in order of time. This seems to be now very generally admitted.

THE LOCALISATION OF THE DIFFERENT WORD-CENTRES.

Although I am not a believer in the complete topographical distinctness of the several sensory centres in the cerebral hemisphere, I consider it clear that there must be certain sets of structurally related cell and fibre mechanisms in the cortex, whose activity is associated with one or with another of the several kinds of sensory endowment. Such diffuse but functionally unified nervous networks may differ altogether from the common conception of a neatly defined "centre," and yet for the sake of brevity it is convenient to retain this word and refer to such networks as so many "centres."

Looking to the extremely important part that words, either spoken or written, play in our intellectual life and to the manner in which they are interwoven with all our thought-processes, it becomes highly probable that most important sections of the auditory and the visual sensory centres are devoted to the reception, and consequently to the revival in thought, of impressions of words: and for convenience of reference it is permissible to speak of these portions as auditory and visual "word-centres" respectively. Similarly, there must be what I have termed kinæsthetic word-centres of two kinds (the one in relation with speech-movements, and the other with writing movements) holding a like all-important relation to the expression of our thought by speech and writing. It is possible that the particular parts of the general auditory and visual centres which are in relation with word-impressions may be more or less distinctly defined, like the analogous parts of the general kinæsthetic centre that are in relation with speech or with writing movements. Certain it is that there are some varieties of amnesia in which the part of the visual centre in relation with words seems to be specially at fault (as in "word-blindness"), just as there are other cases in which the part of the auditory centre in relation with words is either wholly or partially inactive (as where we have to do with different degrees of "word-deafness")—in each case without defect in other parts of the general visual or auditory centres, as evidenced by the fact that the persons so affected can still quite well see and recognise ordinary objects, or hear and recognise the nature of ordinary sounds.

In regard to the visual centre as a whole, it seems now to be established that it is more or less diffused through the convolutions on the inner aspect of the occipital lobe and probably even more widely throughout this lobe. The particular part of the visual centre that is most concerned with the appreciation and memorial recall of words—or, in other words, the destruction of which most certainly gives rise to word-blindness—is now fairly well settled. There is much evidence to show that this region corresponds with the

[2] These forms of word-memory were first definitely stated by me to be purely sensory in papers on the Physiology of Thinking (Fortnightly Review, 1869) and on the Muscular Sense (Brit. Med. Jour., April, 1869); and the name "kinæsthetic" was subsequently (The Brain as an Organ of Mind, 1880, p. 543) applied to the complex groups of impressions resulting from movements of this or that part of the body.

[3] Other French writers, as well as Ballet, attribute to Charcot the doctrine that "le mot n'est pas une unité, mais un complexus" (Le Langage Intérieur, 1886, p. 13) because he also dwelt upon these four different kinds of word-memory. Charcot's lectures on Aphasia were delivered in 1883, but M. Ballet will find a full description of these four different kinds of word-memory in my book The Brain as an Organ of Mind, 1880, p. 696, or in the French translation (Le Cerveau et la Pensée, tome ii., p. 222), published in 1882.

angular gyrus either alone or in association with part of the supra-marginal lobule—and therefore that it is situated just beyond the confines of the occipital lobe, and in the region originally assigned by Ferrier, upon the basis of his experiments with monkeys, as the centre for vision as a whole.

In regard to the localisation of the general auditory centre considerable doubt now exists, since the researches of Schäfer and Sanger-Brown do not support Ferrier's allotment of this endowment to the upper temporal convolution. Curiously enough, however, it again happens that the localisation of the part of the general auditory centre most concerned with the appreciation of words (as based upon clinico-pathological evidence in man) must be regarded as being in the posterior half or two-thirds of the upper temporal convolution. The above-mentioned results of Schäfer and Sanger-Brown as to the localisation in monkeys of the general sense of hearing were of a negative character, and cannot be said to afford any definite evidence against this presumption as to the site of the auditory word-centre in man.

The situation of one of the two kinæsthetic word-centres can be rather more certainly localised. Having elsewhere stated very fully my reasons for believing that the so-called "motor centres" of Ferrier and others are really sensory centres of kinæsthetic type by means of which movements are guided,[4] I shall not now attempt to set forth the evidence in favour of this opinion, but shall merely state my belief that Broca's region—namely, the posterior part or foot of the third frontal and the inferior part of the ascending frontal convolutions—is in reality the part of the brain to which I have been alluding as the "glosso-kinæsthetic" centre. The situation of the "cheiro-kinæsthetic" centre cannot be localised with nearly as much confidence. The tendency for some years has been to follow Exner, who believes it to be situated in the posterior part of the second frontal gyrus, though, as we shall see later, the evidence in favour of this localisation is at present extremely scanty. All that can be said on this point, therefore, is that we know approximately where to look for the cheiro-kinæsthetic centre.

For the purpose of our discussion, then, it may for the present be assumed that the two kinæsthetic word-centres are situated as above stated: that the auditory word-centre is situated in the posterior half or two-thirds of the upper temporal convolution; and the visual word-centre in the angular and part of the supra-marginal convolutions. It must also be assumed, upon grounds subsequently to be set forth, that these last-named word-centres are connected together by a double set of commissural fibres. We must likewise suppose that two other important sets of commissural fibres exist between the different word-centres—namely, one set through which the auditory word-centre acts upon the glosso-kinæsthetic centre for the production of speech movements, and another by means of which the visual word-centre acts upon

FIG. 1.

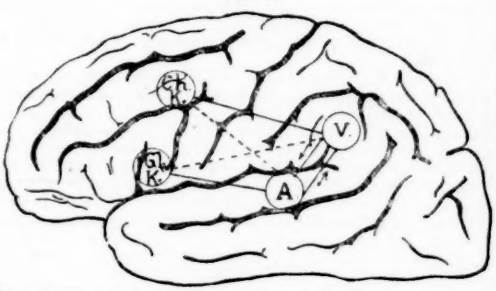


Diagram showing the approximate sites of the four word-centres and their commissures.

the cheiro-kinæsthetic centre for the production of writing movements.

In the study of speech defects it is therefore necessary to consider the effects of lesions in the following situations; (*a*) in the different kinds of word-centres; (*b*) in the different commissures by means of which these centres are connected with one another; (*c*) in the internuncial fibres connecting the two kinæsthetic word-centres with their related motor-centres, in the bulb and in the cervical region of the spinal cord; and (*d*) in these motor-centres themselves which are concerned with the actual production of speech and writing. But before dealing with any of these problems in detail a few other aspects of the questions relating to word-memory, as well as the modes of activity of the brain in perceptive and speech processes require to be considered.

THE PRIMARY SITE OF REVIVAL OF WORDS IN SILENT THOUGHT.

It seems clear that words are the symbols with which our thoughts are inextricably interwoven, and that the revived feelings, ideas, or "images" of words may enter into thought processes by a more or less simultaneous renewal of activity in different regions of the cerebral cortex. There may be a revival of sounds of words as we hear them in ordinary speech; there may be a revival of visual impressions of words as we have seen them in written or printed characters; and, lastly, there may be a revival of the feelings of muscular contractions concerned in the pronunciation of words. Of these modes of "ideal" recall of words the two former are distinct and easily recoverable, while the latter is vague and difficult of conscious realisation. Let anyone contrast his idea of the sound of the word "London," or his idea of the appearance of the word when printed or written, with his idea of the muscular and other feelings associated with the articulation of the same word, and the inferiority in definiteness and recoverability of the latter will at once become obvious.

It is, however, a matter of extreme importance for the due understanding of the different kinds of speech defect and for the success of our endeavours to refer them to defective activity in this or that physiological region of the hemispheres that we should definitely know in what sensory region of the cortex words are principally recalled to mind during ordinary thought-processes. Two distinct views radically opposed to one another have been advocated on this subject.

There is the view (1) that words are revived as "motor processes"—that is, as faint excitations of the processes occurring in motor centres during the articulation of words; and (2) there is the view that words are revived in ordinary thought in the main as auditory ideas or images. The former view has for a long period been promulgated by Hughlings Jackson, and has more recently received the strong support of Stricker, both of them regarding Broca's region as a motor rather than as a sensory centre. The latter view is that which the writer has now for many years advocated. The fundamental nature of my opposition to the former view may be gathered from the fact that I have for many years expressed the opinion that motor centres, wherever they may be situated, are parts whose activity appears to be wholly free from subjective concomitants. No "ideal" reproductions seem ever to take place in such centres; they are roused into activity by outgoing currents, and, so far as we have any evidence, the induction in them of molecular movements which immediately afterwards issue through cranial and spinal motor nerves to muscles are, like those which they engender, simply physical phenomena.[5] It is true that the altered condition of the muscles and of contiguous parts induced by these outgoing stimuli together engender a body of ingoing impressions, the terminus for which is the kinæsthetic centre. This latter is therefore a true sensory centre, and in it images of movements or "ideal movements" may be revived in a more or less vague manner as already indicated.

But, even if we adopt what appears to me to be the more legitimate view that articulatory movements as well as movements in general are represented in the cerebral cortex only by sensory centres, there are still, I think, good reasons for rejecting the notion that the "material of our recollection" in the use of words during silent thought is primarily revived as glosso-kinæsthetic impressions in Broca's centre. The principal reasons opposed to this view seem to me to be as follows. In the first place it must be evident from the mode in which speech is acquired by the child that during the few months in which words enter into the simple trains of thought, before he has acquired the power of articulating them for himself, they must be revived as

[4] "The Muscular Sense: its Nature and Cortical Localisation," Brain, April, 1887, and "On the Neutral Processes Underlying Attention and Volition," Brain, April, 1892.

[5] The Brain as an Organ of Mind, 1880, p. 599.

auditory impressions. Secondly, there is, as we have seen, a much greater definiteness of impression and readiness of recall for auditory than for articulatory feelings; and so far, therefore, there is a greater fitness in the former for serving as the "material of our recollection" of words in ordinary thought processes. Thirdly, there is reason to believe that revived auditory feelings continue after the acquirement of speech by the child to have the same relation to his thought-processes as they must have had before his acquirement of the power of speaking. If this were not so it would be impossible to understand why total deafness supervening in a child in full possession of speech as late as the fifth, sixth, or even the seventh year, will certainly entail dumbness unless the child be drilled in lip-reading, that is, unless the primary incitation to acts of speech be gradually transferred from the auditory to the visual centres. Fourthly, because, as we shall subsequently find, there is much evidence against this view to be derived from the study of speech defects, and none that I am aware of telling unmistakeably in its favour.

It seems to me to be an error to attempt to settle such a question by endeavouring to ascertain which form of word-memory reveals itself most in consciousness; and I venture to think that the recent principal advocate of the view that words are primarily revived during silent thought as "motor processes," relies too much upon what is in reality an untrustworthy method—that of introspection. By concentrating his attention upon the genesis of his own speech, Professor Stricker inevitably brings its expressive side into undue prominence. As Taine says[6]: "Plus on imagine nettement et fortement une action, plus on est sur le point de la faire... quand l'image devient très lumineuse elle se change en impulsion motrice."[7]

The primary revival of words during thought takes place, I submit, in the great majority of persons by a sub-conscious process in the auditory centre, and tends to be immediately followed by correlated revivals in the glosso-kinæsthetic centre, and these again by incipient or complete activities in the bulbar motor centres. It may be perfectly true that kinæsthetic memories vary in intensity in different individuals, as do auditory and visual memories; and it might have been thought that Stricker and also Ballet (who adopts his view in a more discriminating manner) were to be counted as persons in whom the former kind of memory is highly developed, but for the fact that Ballet expressly states[8] his inability voluntarily to recall cheiro-kinæsthetic impressions. He believes, moreover, for reasons given, that the same holds good for Stricker. Thus they cannot voluntarily recall the kinæsthetic impressions associated with the act of writing a word, but they say they can recall the kinæsthetic impressions associated with the articulation of the same word, even although the movements in the latter case are much more of an automatic type. These apparently contradictory results are easily explicable in accordance with my views, when one considers how the thought of a word naturally runs on to an incipient articulation[9]; while, on the other hand, the mere thought of the same word has no appreciable tendency to evoke writing movements. The negative results of Ballet and Stricker with cheiro-kinæsthetic revivals of words would seem, therefore, to have all the force of a crucial experiment and to throw great doubt upon their supposed ability primarily to revive words in the glosso-kinæsthetic centre.

It seems pretty certain, therefore, that the real linguistic counters for thought are the auditory and visual memories of words. And in regard to these two I believe that in the very large majority of persons it is the auditory word-memory which is first revived in silent thought. This view is now very generally adopted, as may be seen by reference to the works of Ross[10] and Bernard.[11] It appears also to be the view of Herbert Spencer, since he says[12]: "Our intellectual operations are, indeed, mostly confined to the auditory feelings (as integrated into words) and the visual feelings (as integrated into ideas of objects, their relations and their motions)." Although the first stage in the revival of words seems to occur, however, in the auditory centre, the molecular disturbance thus initiated is immediately transmitted to a varying extent in two directions. It is transmitted to the visual word-centre on the one side and to the glosso-kinæsthetic centre on the other—to the latter strongly where the thought is to issue in speech, and to the former strongly where it is to issue in writing.

There can be no doubt that in some persons the visual centres as a whole are more highly developed and organised than the auditory centres, and *vice versâ*. The existence of such differences has been thoroughly shown by Francis Galton.[13] Thus he took steps to test the power of what he calls "visualising"—that is, the ability of persons to see with the mind's eye distinct images of objects in their natural grouping and colouring. The one hundred answers that he received as to the power possessed by the persons selected of visualising the breakfast table to which they had sat down in the morning disclosed an extraordinary range of variation in this respect. One of those who had the highest power of visual recall answers: "Thinking of the breakfast table this morning, all the objects in my mental picture are as bright as in the actual scene." One of those who had the lowest power answers: "No individual objects, only a general idea of a very uncertain kind." Galton adds: "There are a few persons in whom the visualising faculty is so low that they can mentally see neither numerals nor anything else; and again there are a few in whom it is so high as to give rise to hallucinations." In this general sense persons may well be classed as "visuals" and "auditives" respectively; and we may thus indicate for this or that person which is the more potent sensory endowment.[14]

Supposing, however, that a person is a "visual" in this general sense, it should not, in my opinion, be taken as necessarily implying that visual memories of words are for him the first to be revived in silent thought. If it were so we should expect to find speech greatly interfered with in many cases of simple word-blindness; but this seems comparatively rarely to be met with, the contrast in this respect being most striking between destruction of the visual and destruction of the auditory word-centres respectively. The primary revival of words may, perhaps, still occur in a visual in the auditory centre, only in such a person these primary revivals may be strongly backed up and reinforced by visual images. So that where the auditory word-centre is damaged in such a person its action as a leader in the memorial recall of words, might to a certain extent be taken on by the visual word-centre; while in a person who is not a "visual" but little compensation of this kind could occur for the loss of the auditory word-centre. Thus the clinical effects in the form of speech disturbance would be different and altogether more marked in the latter case. It will be found that many recorded cases of speech defect lend support to these views, and that this, in fact, is the real practical outcome of all that has been said by Charcot and his followers as to the division of persons (in reference to the interpretation of speech defects) into four categories—"auditives," "visuals," "motors," and "indifferents"; a doctrine which has been fully set forth by Ballet.

I contend that this doctrine must not be taken to mean anything more than that the different kinds of word-memory referred to in the first three types may be met with in different degrees of excellence, and that in the fourth type there is no one kind of memory which is developed to a preponderating extent. In the latter class there would be no ground for supposing that the ordinary rule as to the primary revival of words taking place in the auditory centre is ever altered. As to the existence of persons representative of the third class I have already expressed my doubts—that is to say, I can find no good reasons or evidence to show that words ever arise in silent thought primarily in the kinæsthetic centres. I doubt whether these memories are capable of separate voluntary recall, and do not believe there is any evidence to show, as Bernard says,[15] that "the motor centre for speech may become independent of the sensorial centre which had presided over its education."

The case is altogether different in regard to individuals of the second class—the "visuals"—because not only does the power of memorial recall in the visual centre vary immensely

[6] De l'Intelligence, troisième édition, tome i., p. 482.
[7] See his work, Le Langage et la Musique, Paris, 1884.
[8] Le Langage Intérieur, 1888, p. 55.
[9] Ballet, in fact, says, loc. cit., p. 52:—"Chez moi, comme chez la plupart des moteurs je pense, la parole intérieure devient souvent assez vive pour que j'arrive à prononcer à voix basse les mots que dit mon langage interieur." What he says on the next page shows that he is not a strong "visual," but does not tell against his being a strong "auditive." His better memory of a lecture after delivering it might be explained by the help derived from auditory or kinæsthetic impressions of the words, or from the two in combination.
[10] On Aphasia, 1887, p. 114.
[11] De l'Aphasie, 1885, p. 49.
[12] Principles of Psychology, vol i., 1870, p. 187.
[13] Inquiries into Human Faculty, 1883, p. 83.
[14] On this subject many interesting details have been given by Ballet, loc. cit., pp. 17–45.
[15] Loc. cit., p. 48.

in different persons, as we have seen, but there is also good reason to believe that in a small minority of persons the primary revival of words during a process of silent thought may take place therein, just as it does in the act of reading. Thus Galton says[16]: "Some few persons see mentally in print every word that is uttered; they attend to the visual equivalent and not to the sound of the words, and they read them off usually as from a long imaginary strip of paper." It is possible, of course, that a person possessed of this high visualising power, whilst he may be thus aided in the delivery of a speech previously written, may nevertheless, in a process of silent thought, conform to the ordinary rule and revive words voluntarily in his auditory centre. But it may be otherwise with some few persons, so that, as Ribot supposes, they may habitually think and represent objects "by visual typographic images." Something of this kind we are bound to suppose must occur in a word-deaf person whose auditory word-centre is destroyed and who is yet able to speak—a rare conjunction that has occasionally been met with; just as we are bound to suppose that when a congenitally deaf and dumb child is taught to speak by the lip-reading process he brings this about by means of a primary revival of visual images, which act directly upon the glosso-kinæsthetic centre and thence upon the motor centres in the bulb.[17]

Bernard has cited[18] a remarkable instance of a patient who possessed a visual memory exceptionally strong, whilst his auditory memory was proportionally weak. In this patient the visual images of words and figures were evidently predominant during thought processes. "If he recited a lesson whilst at college, or an extract from a favourite author later on, two or three readings were sufficient to fix in his memory the page with its lines and its letters, and he recited by mentally reading the desired passage, which, at the first summons, presented itself with the greatest distinctness." Ballet[19] also quotes a letter from a librarian at Geneva which is extremely interesting. He writes: "When I think of a word or a phrase I see very distinctly this word or this phrase printed in ordinary characters, or written in my own writing or that of another person; the letters of a word are distinct from one another, and the intervals between each word written in black appear to me also. I see them in white. All my reproductions of words are visual." The same author mentions an orator, Hérault de Séchelles, who was accustomed, as it were, to read his speeches; and cites an epigram of Charma, also a "visual," who, speaking of the class to which he belongs, said, "Nous pensons notre écriture, comme nous écrivons notre pensée."

Undoubtedly, then, it would seem that there are certain exceptional persons who, as it were, read rather than hear their thoughts; and in whom, as Ballet says, the visual images of words acquire such an importance that they alone constitute the medium of their internal speech. Still, in spite of these exceptions, the general rule is that auditory images constitute the most potent representations of words, whilst visual images form the most potent representations of ordinary external objects.

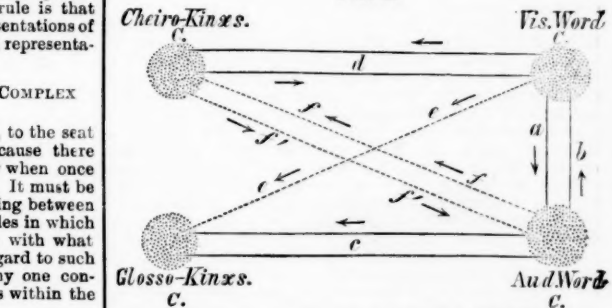
THE REVIVAL OF WORDS FOR SPEECH IS A COMPLEX PROCESS

The views just expressed refer, as I have said, to the seat of the primary revival of words in memory, because there is strong reason for believing that the activity when once initiated does not limit itself to a single centre. It must be borne in mind that the structural relations existing between the different seats of word-memory and the modes in which these are functionally related is in accordance with what occurs in ordinary processes of perception. In regard to such a process I have elsewhere said[20]: "When any one constituent of a natural cluster of sensations comes within the range of the corresponding sense organs of an animal the other possible impressions composing the cluster (and representing the organism's knowledge of the external object) become simultaneously nascent in memory, so that the object is perceived or recognised. If in a dark room my hand comes upon an orange or a book, either of these sensations of touch will immediately fuse with nascent ideas of other possible sensations from the same object (whichever it may be), so that this object is perceived as a present external reality. ..... Thus it happens that an object is recognised immediately or intuitively, not so much by the mere single or double impression present, as by the blending of this with more or less fully revived memories of other impressions which have at various times been associated with the same object. Truly enough, as Bain says, 'When we see, hear, touch, or move, what comes before us is really more contributed by the mind itself than by the present object.' ..... It is therefore by the simultaneous consciousness and fusion, as it were, of the subjective side of various new and old impressions that a present object is perceived and recognised. It could only be by the previous establishment of structural communications between the severally related sensory cells (in different centres) that the excitation of those of any one order would suffice to revive more or less strongly in other groups just such molecular changes as like objects had on previous occasions excited. And it may be easily understood that the molecular movements initiated by any one or two sense impressions may start from such groups of cells and thence flow over into all communicating channels between them and the cells of other related groups."

In a similar manner it may be supposed that the revival of activity in the auditory centre during the voluntary recall of words does not remain limited to that centre, but gives rise, as I have already said, to molecular movements in two directions—that is, forwards to related portions of the kinæsthetic centre and backwards and upwards to related portions of the visual centre—though with different degrees of intensity in different persons.

It is of importance to remember that for ordinary persons (that is, for those who are neither congenitally blind nor congenitally deaf) the four memories of words seem to be mainly called into play in definite couples—namely, the auditory and the glosso-kinæsthetic revivals taking place during articulate speech, and the visual and cheiro-kinæsthetic revivals taking place during ordinary writing. By this I mean that in expressing one's self in spoken words memories of such words are first principally revived in the auditory centre, and that the nerve units thus called into activity immediately rose through commissural fibres (see Fig. 2, *c*) the corresponding

FIG. 2.



A diagram illustrating the relative positions of the different word-centres and the mode in which they are connected by commissures. The connexions indicated by dotted lines indicate possible but less habitual routes for the passage of stimuli.

glosso-kinæsthetic elements before the pronunciation of the word can be effected through the aid of the motor centres in the bulb. Probably in a healthy brain there is some amount of concurrent activity during speech in related portions of the visual word centre.

Again, when we are expressing our thoughts by writing, though the memories of the words are probably first revived in the auditory word-centre, corresponding memories are almost simultaneously revived (through the intervention of the audito-visual commissure, *b*) in related parts

[16] Loc. cit., p. 96.

[17] In the case of a deaf and dumb child taught to speak and understand others by means of hand and finger movements their thought-counters would be combined visual and kinæsthetic impressions, or in the case of one who had been taught to read much from early life they might be "visual typographic images." On the other hand, in the case of a congenitally blind person who has been taught to read aloud by means of raised letters and words excitation of the centres for touch and kinæsthesis would constitute the initial processes in the act of reading aloud, although revived auditory impressions might constitute, as in ordinary persons, the habitual thought-counters. A patient of the former class whose history has been reported by E. Fournier (Essai de Psychologie, Part II., chap. v.) says: "Je sens quand je pense que mes doigts agissent, bien qu'ils soient immobiles. Je vois intérieurement l'image que produit le mouvement de mes doigts."

[18] Le Progrès Médical, July 21st, 1883.

[19] Loc. cit., p. 44.

[20] The Brain as an Organ of Mind, p. 176.

of the visual word-centre, and from this region stimuli pass by another commissure (*d*) to corresponding cheiro-kinæsthetic elements before the actual writing of the words can be effected through the instrumentality of motor centres in the cervical and upper dorsal regions of the spinal cord.

There can be no doubt, in fact, that the functional association existing between the auditory and the glosso-kinæsthetic centres, as well as that between the visual and the cheiro-kinæsthetic centres, is of the closest kind. No less intimate, however, is the bond of association between the activity of the auditory and the visual word-centres themselves. These latter centres are often necessarily called into associated activity in immediately successive units of time. This happens, for instance, in two such common processes as reading aloud and writing from dictation.

In reading aloud the primarily excited visual word-centre must arouse, through (*a*) the visuo-auditory commissure, related parts of the auditory word-centre, since this is the part which ordinarily calls the glosso-kinæsthetic centre into activity, whence properly coördinated incitations issue from the cortex, in order to call into play the motor centres in the bulb.

Again, in writing from dictation the sounds of the words reach the auditory word-centre, and the activity thus aroused becomes transmitted through (*b*) the audito-visual commissure to related parts of the visual word-centre, this being the part that usually rouses the cheiro-kinæsthetic centre into activity, whence properly coördinated incitations issue from the cortex in order to call into play the motor centres in the cord concerned with the act of writing.

In exceptional cases it seems that the ordinary functional coupling of the auditory with the glosso-kinæsthetic and of the visual with the cheiro-kinæsthetic word-centres is not adhered to. Thus the deaf-mute thinks in the main with revived visual symbols (either of hand or of lip movements) and it is from the organic seats of these that incitations pass to related parts of the glosso-kinæsthetic centre (*e*, *e*). A similar stimulation of these centres direct from the visual word-centre seems occasionally to obtain in persons who are not deaf-mutes. We have already assumed it to be possible for some few "visuals," and subsequently for the interpretation of certain cases of disease in which the auditory word-centre has been damaged we shall find ourselves obliged to have resort to such a supposition.

Again, in those children who have been born blind, but have nevertheless ultimately learned to write, a direct association must become established between the auditory and the cheiro-kinæsthetic word-centres (*f*, *f*). The same kind of associated activity between these two centres must exist in certain other persons not born blind, seeing that some patients suffering from word blindness owing to destruction of the visual word centre are able, nevertheless, to write, either spontaneously or from dictation.

This functional unification of the word-centres of which I have been speaking does not, however, remain in a state of isolation. Words that are heard are first of all associated in the mind of the child with external objects, so that such auditory impressions become linked, by means of associational fibres, with the organic seats of the several sensory impressions—also freely connected with one another—that the child has been able to derive from this or that object. Thus the name subsequently becomes revived as part of the perceptive process whenever the object is again presented. The sight of the mother recalls the name "Mamma," just as the sound of this word would revive the corresponding visual, tactile, and other images. After a time the auditory representative of the name becomes reinforced by glosso-kinæsthetic impressions as soon as the child learns to utter the word; later by visual impressions, when it learns to read, and by cheiro-kinæsthetic impressions when it has learned to write.

The several components of word-percepts are thus brought, not only into relation with one another, but become no less intimately associated with the several sensory components of object-percepts. The result is that the hearing or the sight of the name of any object immediately calls up in the older child or in the adult an idea of the object, just as its presentation to sight or other sense produces a nascent activity in the several centres in which its name is registered, though mainly in the auditory and the visual centres.

Words soon become to a very large extent the symbols whereby we carry on our thoughts, and this thinking by means of words becomes all the more thorough as thought is become more complex. We can think of a particular person or of a particular plant as well by recalling the visual image as by recalling the name. But when in thinking we have to recall general names, such as "animal" or "tree," or still more abstract names such as "virtue" or "vice," it becomes certain that in silent thought we use the words as symbols for the more or less complex ideas which they represent. And if we bear in mind that the seats in which these words are registered (our word-centres) are in organic and functional relation with the seats of registration of the corresponding percepts, concepts, &c., we are enabled in a measure to understand how the revival of the word in the mind (as the thought-counter) is associated with an almost simultaneous activity in the seats of registration of the corresponding percepts and concepts.

We may thus recognise how it happens that in simple acts of perception, and still more in simple thought processes, we have no limitation of cerebral activity to narrowly localised centres, but rather widespread processes of activity in very varied regions of the cortex, and that, too, in both hemispheres of the brain. In our talk about individual centres and their functions we are apt to forget how much the brain acts as a whole even in operations that seem comparatively simple, and many of those who have written on aphasia have, as I venture to think, not sufficiently taken into account the fact that the name constitutes an integral element of the percept or of the concept.

ON THE DIFFERENT MODES OF EXCITATION OF THE WORD-CENTRES, AND ON THE REASON OF THEIR FUNCTIONAL PREDOMINANCE IN THE LEFT HEMISPHERE.

It is important to recollect that word-centres are naturally called into activity in states of health in three modes, but that failure in the possibility of their excitation by one or other of these modes occurs in various morbid conditions, leading to this or that kind of speech defect. The three modes of excitation are these: (1) By means of "sensory" impressions coming from without; (2) by "association"—that is, by impulses communicated from another centre during some act of perception or thought process; and (3) by "voluntary" recall of past impressions, as in an act of recollection. It is convenient for practical purposes to separate these second and third modes of calling into activity the perceptive centres; still they are probably closely related to one another and scarcely separable in nature, although the associational processes in the case of "volitional" excitation may be so difficult to trace that the recall assumes a quasi-spontaneous character.

The excitability of the centres—that is, the molecular mobility of their nervous elements—may vary with age, state of health, or the existence of different morbid conditions. Their excitability may be so much lowered that they are only capable of responding to powerful stimuli: so that while volitional recall (or "recollection") may be impossible within their province, such centres may still be capable of acting in "association" with others—that is, in an automatic manner during an ordinary process of thought—or at least under the "sensory" stimulus which initiates a perceptive process. At other times the excitability of the perceptive centres may be unduly exalted, so as to lead to hallucinations, illusions, and a wholly different class of defects such as are often met with among the insane.

From what has been said in a previous section it will be seen that I entertain doubts whether kinæsthetic word-memories of either kind are capable of being revived alone in a voluntary manner.

As to the causes which have determined the greater or almost exclusive influence of the left hemisphere in inciting speech movements, and therefore in acting upon the bulbar motor centres for words, only conjectures can be offered. It is, however, now pretty generally agreed that the immediate or proximate cause is to be found in the fact of the predominant use of the right hand, which entails a greater functional activity upon the left cerebral hemisphere. This view rests principally upon the now ascertained fact that in the great majority of cases in which aphasia has occurred as a result of brain lesions in the right hemisphere (with or without the association of left hemiplegia) those so affected have been left-handed persons.[21] It would thus seem to

[21] According to Seguin, out of 266 cases of aphasia he found 243 with right and 17 with left hemiplegia; that is, somewhere about 6 per cent. W. Ogle, on the other hand, from inquiries among 2000 hospital patients, found that 85 of them were left-handed; that is, about 4½ per cent.

follow that the predominant use of the right hand or of the left hand carries with it, as one of its associated effects, the leading activity in the production of speech by the left or the right hemisphere respectively; and that we must consequently push our question further back, and inquire as to the causes that have led to this predominant use of the right hand.

This problem has been considered by Pye-Smith,[22] and also in a more exhaustive manner by William Ogle,[23] but can only be briefly alluded to here. It has been thought to depend largely upon tribal or social customs and early tuition of young children by their mothers, though doubt has been thrown upon these views as giving any adequate explanation of the problem. William Ogle looks rather to certain peculiarities in the mode of origin of the left and right carotids respectively as calculated to favour a slightly freer blood supply to the left cerebral hemisphere. If this were really so, it is conceivable that it might after a time have led to a slightly earlier development of the convolutions on the left side of the brain (which has been affirmed to occur by Gratiolet, though denied by Carl Vogt and Ecker), and thus perhaps have led to a preferential use of the right hand in the early and more definite movements of the child. Such preferential use being once started and maintained through several generations, it is only to be expected that it would continue; for if the effects of use and disuse are inherited as, with Herbert Spencer, I believe to be the case (in spite of all that Weismann says to the contrary) heredity would coöperate with the original cause in confirming and making general this preferential use of the right hand.

But whatever may have been the original cause of this now very general attribute of right-handedness—and the chief difficulties of the problem with which we are concerned lie here—it would easily follow that with its continuance in process of time the left hemisphere should become (as it has been found to be) slightly heavier than the right, and that the left carotid might become (as it is said to be) very slightly larger than the right carotid. It is practically certain that the great preponderance of right-hand movements in ordinary individuals must tend to produce a more complex organisation of the left than of the right hemisphere. We may confidently look for the existence in it of the organic basis of a vastly greater and more complex tactile experience; and as movements of the right hand and arm are more frequent, both as associated factors of this experience and in other ways, we have also a right to suppose that the kinæsthetic centres will be similarly developed to a notably greater degree in the left hemisphere.

Many years ago I ascertained a fact which then seemed very difficult to understand—namely, that the specific gravity of the cortical grey matter of the brain in the left frontal, parietal, and occipital regions is often distinctly, though slightly, higher than that from corresponding regions of the right hemisphere. Full details as to this will be found in a paper "On the Specific Gravity of the Human Brain," published in 1866.[24] Now such an increase in specific gravity might easily be produced by the greater number of cells and associational fibres which the extra sensory and derivative functions above referred to would necessarily entail.

Thus it may, in brief, be said that this preponderating activity of the left hemisphere in regard to tactile and kinæsthetic impressions (about which there is no room for doubt) may have much to do with the fact that the left hemisphere is the more potent and seems to take the lead in some thought processes, as well as in giving rise to the voluntary excitations which determine the muscular acts involved in articulate speech. A greater convolutional complexity of the lower part of the left frontal lobe as compared with the right, which has been found to exist, is thought to be a result of this preponderant activity of the left hemisphere in the production of articulate speech. Some evidence in favour of this view is to be found in the fact that Broadbent, in his examination of two brains taken from left-handed persons that were submitted to him by William Ogle, found in them the reverse condition—that is, that the greater convolutional complexity was on the right rather than on the left anterior lobe.[25]

There still remains the question why one cerebral hemisphere only should be efficiently educated for the perception of speech and for the production of speech movements, when, seeing that the bulbar motor centres are bilateral, it might seem that such centres would be likely to receive their stimuli from both hemispheres. In partial reply to this question Moxon, in a very able paper,[26] long ago suggested that the call upon attention was so great for the production of the extremely elaborate movements concerned in speech that the necessary concentration of attention would be much facilitated if this process of education were limited to one hemisphere. Whatever may be thought of this ingenious suggestion, nothing better has hitherto been forthcoming.[27]

What has just been said as to the action of the left hemisphere rather than the right in the production of speech must be understood with certain reservations. It must not be supposed that the right hemisphere remains entirely uneducated, either in regard to the comprehension or to the production of speech. Little is said by writers generally on this subject, and what has been said has reference principally to the third frontal convolution. A hypothesis as to the functions of this part of the brain has been enunciated by Hughlings Jackson,[28] and another view, as to what is figuratively termed the "overflow of education into the opposite hemisphere," has been expressed by Wyllie.[29] But neither of these hypotheses appears to me to be in accord with existing knowledge.

The most important points to be borne in mind in reference to this subject would seem to be these. All the movements concerned in speech are movements produced by symmetrically placed muscles on the two sides of the body; there is just as much reason, therefore, for the registration of kinæsthetic impressions resulting from speech movements in the right as in the left third frontal convolution. Again, it cannot be supposed that auditory impressions from spoken words do not pass from each ear to similar regions in the opposite cerebral hemisphere; and our present knowledge makes it equally improbable that the visual impressions of words are not registered in a visual word-centre in each hemisphere. For each of these three sets of afferent impressions, therefore, there is, as I believe, no question of an "overflow" from one to the opposite hemisphere; on the contrary, each hemisphere receives its own proper share of ingoing impressions, and doubtless registers them in a more or less similar fashion. That this should be so seems an obvious truth, though it is one that hitherto appears to have been very imperfectly realised. Again, it may be taken as established, for reasons which will subsequently appear, that the separate centres composing each of these pairs are brought into functional union by means of commissural fibres forming part of the corpus callosum. So far, therefore, we seem bound to admit that each hemisphere has the chance of being equally educated, so far as the mere *reception* of speech impressions is concerned.

It is, however, when we come to the executive side of speech functions that the great difference begins to appear between the relative activity of the two hemishperes of the brain. For reasons which we have previously been dimly endeavouring to indicate, the executive speech functions become relegated to one hemisphere, and this leading hemisphere, generally the left, becomes for this and for the other reasons which we have adduced more highly organised. The fact that the volitional impulses for the incitation of speech pass off from this hemisphere leads of necessity to the gradual perfecting of the associational channels between the auditory and the glosso-kinæsthetic centres, as well as between the auditory and the visual word-centres of the left hemisphere, and also to the perfecting of

Left-handedness, curiously enough, was found to be "twice as common in men as in women." Ogle shows, too, how very frequently there is hereditary transmission of this peculiarity.

[22] Guy's Hospital Reports, vol. xvi., 1871.

[23] Transactions of the Royal Medical and Chirurgical Society, 1871.

[24] Journal of Mental Science, pp. 28, 32.

[25] Transactions of the Royal Medical and Chirurgical Society, 1871, p. 294.

[26] British and Foreign Medico-Chirurgical Review, 1866, p. 481.

[27] Moxon's paper is, indeed, in other respects remarkable, looking to the date at which it was written. Thus he speaks of spoken words as represented in Broca's region by "educated associations of movements"; and the meaning that he attaches to this phrase is rendered evident further on when he dwells upon the "inconceivable pitch of education which is given to these supra-motory departments, if I may so call them, of the brain, which hold ready for use the memorial forms of outgoing words," or still better where he says, "The situation of the ideas of *associated motions* which form the faculty of speech is supra-motory, whilst the situation of the ideas of *associated sensations* which form the faculty of language comprehension is supra-sensory."

[28] Brain, vol. ii., 1879, p. 327.

[29] The Disorders of Speech, 1895, p. 262.

the outgoing channels of communication between these sensory centres and the true motor centres in the bulb. The corresponding associational and outgoing channels in the opposite hemisphere, however, being but little used, may remain comparatively undeveloped.

This difference in the degree of activity of the two cerebral hemispheres during speech would tend to become more and more accentuated in future years, and would in all probability lead to a much higher grade of functional activity, even on the receptive side, in the three kinds of word-centres pertaining to the leading hemisphere.

Views of this kind as to the partial education of the word-centres of the opposite hemisphere will be found to be of considerable importance when we come to speak of the modes in which destruction of one or other of the word-centres in the leading hemisphere may be compensated—or, in other words, of the way in which a cure may be brought about in this or that form of speech defect.

DOES CONCEPTION TAKE PLACE IN A CENTRE ALTOGETHER APART FROM PERCEPTION?

The first authoritative writer on defects of speech who started the notion of the existence of an altogether separate centre for conception or ideation was Broadbent. This he did in a very important memoir, "On the Cerebral Mechanism of Speech and Thought," published in 1872.[30] Whilst there adopting some views which I had previously published on the subject of the cerebral processes that occur in perception,[31] he made a departure from them in the direction above indicated. The functions that I spoke of as being carried on in the perceptive centres he divided into two stages. He said: "There is a primary or rudimentary perceptive act in which the external cause of a given set of sensations is recognised as such, and in which the simple attributes, as of form, colour, hardness, &c., are perceived. And there is a higher degree of elaboration in which, by the combination or fusion of perceptions derived from the various organs of sense, a conception or idea of an object as a whole is obtained. This is a new and distinct process, and is usually accompanied by the affixing of a name to the object. To the 'perceptive centres' I relegate simply the translation of sensations into rudimentary or primary perceptions, and these centres must lie somewhere in the marginal convolutions which receive radiating fibres from the crus and central ganglia, upon which therefore impressions will first impinge, and which are symmetrically combined by the fibres of the corpus callosum. The higher elaboration, the fusion of various perceptions together, and the evolution of an idea out of them, will be accomplished not by radiation from one perceptive centre to all the others, but by convergence of impressions from the various perceptive centres upon a common intermediate cell area, in which a process analogous to the translation of an impression into a sensation and of a sensation into a primary perception will take place. This intermediate cell area will form a part of the supreme centre, and will be situated in the superadded convolutions which receive no radiating fibres."

In a subsequent communication some years later these views were still further developed by Broadbent.[32] The centre for concepts was then termed the "naming centre," whilst a related higher motor centre was postulated as a "propositionising centre," in which words other than nouns were supposed to be registered, and where sentences were formulated preparatory to their utterance through the instrumentality of Broca's centre.

This supposed convergence of impressions from the various perceptive centres into a new region in which "conception" and "naming" take place is a view totally different from my own, which nearly thirty years ago was thus expressed:[33] "In the perceptive centres the primary impressions made upon the organs of sense are converted into 'perceptions proper'—that is to say, they receive their intellectual elaboration, and this elaboration implies an intimate cell and fibre communication between each perceptive centre and every other perceptive centre, since one of the principal features of a perceptive act is that it tends to associate, as it were, into one state of consciousness much of the knowledge which has been derived at different times and in different ways concerning any particular object of perception. An impression of an object, therefore, made on any single sense centre on reaching the cerebral hemispheres, though it strikes first upon the perceptive centre corresponding, immediately radiates to other perceptive centres, there to strike upon functionally related cells, all this taking place with such rapidity that the several excitations are practically simultaneous so that the combined effects are fused into one single perceptive act."[34] Thus the work which Broadbent supposes to be done in his "naming" or "concept" centre is according to my view carried out by the simultaneous activity of the different perceptive centres, and certain annexes which are derivative developments therefrom, of which I shall subsequently speak. And, again, I have postulated, instead of a single separate "naming centre," the existence of four "word-centres" as important and intimately correlated parts of the more general auditory, visual, and kinæsthetic centres.

Consequently I never seek to explain certain cases of speech defect, as he and others whom I am about to mention not unfrequently do, by supposing the existence of lesions in a localised centre for "concepts," or of lesions involving the commissural fibres proceeding to or issuing from such a centre.

With variations in detail, views similar to those of Broadbent as to the existence of a special centre for concepts were subsequently published by Kussmaul[35] and Charcot,[36] whilst the views of the latter were adopted and further promulgated by Bernard[37] and Ballet.[38] The existence of a separate centre for concepts is also postulated by Grasset.[39]

The views of Kussmaul were embodied in an elaborate and complicated diagram which it is unnecessary to describe. A more simple and easily to be comprehended diagram was also produced by Charcot (and is to be found in the work of Bernard), which is based upon the same principles as the scheme issued by Broadbent, with the exception that he omits the "propositionising centre" and also adopts my view as to the existence of separate word-centres. He, however, makes the several sensory impressions converge to an "ideational centre" in order that their meaning should be realised, and indicates that the speech centre (that of Broca) and the centre for writing movements (both of them as "motor" centres) are called into activity directly from this ideational centre, as well as from the auditory and the visual centres respectively.

Some diagrams that have attracted much attention were also published by Lichtheim in illustration of his well-known paper on aphasia.[40] They likewise show a centre for concepts altogether apart from the sensory centres, and in his endeavours to explain the different kinds of speech defect he refers two of his types to a destruction of supposed afferent and efferent fibres proceeding to and from this conceptual centre. While, therefore, his diagrams and his language in many parts of his paper would make one think that he adopted in full the view as to the existence of a wholly separate centre for concepts, he says towards the end of his paper[41] "this has been done for simplicity's sake," and that he does not "consider the function to be localised in one spot of the brain, but rather to result from the combined action of the whole sensory sphere." This statement, though it is quite in accordance with my own view, seems to me to invalidate much of his exposition and to make it almost impossible for him legitimately to suppose, as he does, that two of his types of speech defect are to be explained by the supposition of the existence of a lesion involving either the afferent or the efferent fibres pertaining to such a widely diffused centre. In addition there is the serious defect that his diagrams are at variance with his views on this important subject.[42]

My dissent from these particular views of Broadbent

[30] Transactions of the Royal Medical and Chirurgical Society, 1872, pp. 180, 181, and 191.

[31] On the Muscular Sense and the Physiology of Thinking, Brit. Med. Jour., May, 1869.

[32] Brain, vol. i., 1878. [33] Brit. Med. Jour., May, 1869.

[34] From this it is evident that there can in reality be only one perceptive centre, although its different component parts were formerly by myself (as well as by Broadbent) spoken of as "perceptive centres" because their functional activities were integral components of a perceptive act. I recognise now that it would have been better not to have used this term as a name for these centres—that they are, in fact, more appropriately spoken of as sensory centres.

[35] Ziemssen's Cyclopædia, vol. xiv., p. 779.

[36] Le Progrès Médical, 1883.

[37] De l'Aphasie, 1885, p. 45. [38] Le Langage Intérieur, 1885.

[39] Leçons de Clinique Médicale, 1896 (Montpellier).

[40] Brain, 1885. The reader will find several of the diagrams previously referred to in an article on "The Sensory Side of Aphasia," by E. A. Shaw, in Brain, 1893, p. 492.

[41] Loc. cit., p. 477.

[42] I shall later state what I believe to be the interpretation of his seven types of speech defect, when it will be seen that they may be explained without any necessity for supposing the existence of lesions in any such parts.

was expressed in 1880,[43] and again more strongly against them as well as against the allied views of Kussmaul, Charcot, and Lichtheim, in 1887.[44] I am glad to say that this dissent from these doctrines has been followed by that of A. de Watteville,[45] Ross,[46] Allen Starr,[47] and Wyllie,[48] all of whom have likewise decided against the propriety of postulating the existence of a separate centre for ideas or concepts.

My opposition to this postulation of a separate "centre for concepts" was based originally upon psychological considerations. It seemed to me wholly unnecessary and at variance with what appeared to be the real nature of the process of perception.

Then, again, I am unable to find any clear evidence from clinical data tending to prove the existence of a separate "centre for concepts"—or, in other words, any existing forms of speech defect that can only be explained by supposing the existence of a lesion in such a centre or in the course of its afferent or efferent fibres. I am convinced that the supposed necessity for assuming the existence of a "centre for concepts," when seeking to interpret different forms of speech defect, may in many cases be obviated by a fuller recognition of the different degrees of functional excitability that may obtain in the auditory and the visual word-centres respectively. We shall see that their molecular mobility may be so much lowered that they are only capable of responding to powerful stimuli. Thus, whilst volitional recall or recollection may be impossible within their province, they may still be capable of acting in association with other centres—as when reading may be fluent though voluntary speech is greatly impaired; and still more easily under a direct sensory stimulus—as when a word is repeated which the patient has just heard pronounced.[49]

Another cause that has led to this postulation of a "centre for concepts" is traceable, I think, to an inadequate realisation of the nature of a perceptive process and of the fact that a name may and does constitute an integral part of the complexus of revived sensory impressions which go to constitute such a process.

Again, as it would be quite easy to show, perceptive processes vary greatly in complexity and merge by insensible gradations into processes of conception. It seems thoroughly legitimate, therefore, to suppose that these latter more specialised modes of mental activity, whilst having their roots in perceptive centres, must be completed in outgrowths therefrom—that is, in parts of the brain which are in close relation structurally and functionally with the several sensory centres. I have commonly spoken of such regions as "annexes" of the perceptive centres.

Of late Flechsig has called special attention to four areas of the cortex that differ from the sensory areas, since they are neither in relation with afferent nor with efferent fibres. He assumes[50] that these regions subserve higher mental functions than those carried on in the sensory centres, and terms such regions "association areas." These regions seem, therefore, to correspond with what I have referred to above as "annexes of the perceptive centres." They occupy a large proportion of the cerebral cortex, and are thus located by Flechsig: (1) in parts of the pre-frontal lobes; (2) a large portion of the temporal lobes; (3) a considerable area in the posterior parietal region; and (4) the island of Reil. These four fairly well-defined areas are, as above stated, not directly connected with afferent or with efferent fibres, and in addition to this two other reasons are given for supposing them to be concerned with the carrying on of higher functions. Flechsig points out, in the first place, that these regions remain immature and completely devoid of myeline for several months after birth, though the sensorial centres have arrived at comparative maturity; and, secondly, that these association centres are the parts which are especially developed in the brain of man as compared with that of the lower animals.[51]

It is only fair to Broadbent to point out that more than twenty years previously he had cited almost exactly these regions of the cerebral cortex as parts that were neither in direct relation with peduncular fibres nor with those of the corpus callosum, and that he had attributed to these regions just the same functions as those now assigned to them by Flechsig.[52] He adds: "Now the convolutions which I have enumerated as having no direct communication with the crus, central ganglia, or corpus callosum are, in the first place, those which are latest in order of development, and on this ground alone might be supposed to be concerned in the more strictly mental faculties which are latest in their manifestations. They are those which constitute the difference between the human cerebrum and the cerebrum of the quadrumana; and it would, moreover, seem to accord with the general plan of construction of the nervous system and with what we know of the mental operations that these convolutions, which are withdrawn, so to speak, from direct relation with the outer world, should be the seat of the more purely intellectual operations."

It is, I think, perfectly legitimate to suppose that the annexes of the sensory centres, to which I have previously referred, tend to be developed in the directions above indicated by Broadbent and Flechsig, though how much of these territories they occupy must remain altogether uncertain. It seems also probable that there is no sharp line of demarcation between these annexes and the several sensory areas, and that *the combined sensory areas together with the annexes are accustomed to be thrown into functional activity more or less simultaneously*. Thus the processes of perception and conception, together with revival of linguistic symbols, are probably almost as inseparable in their localisation as they are in their nature and modes of occurrence, and their anatomical substrata must be supposed to occupy a very considerable extent of the cortex of both hemispheres.

A final question now remains for consideration related to this other which we have just been considering. It is this—Where are we to look for the registration and revival of words in the cerebral cortex? It may be said that this question has been already answered. And so it has tentatively and in a general sense. We have laid stress upon the existence of four different kinds of memorial registration of words and the probable sites of such word-centres in the hemispheres. We have indicated also that the glosso- and the cheiro-kinæsthetic centres constitute definite parts of the general kinæsthetic centres, and that the auditory and the visual word-centres probably also constitute more or less separate parts of the general auditory and visual centres.

Something additional, however, may now be said concerning the sites of these word-centres which could not well have been said at an earlier period, and that is that each of them is probably to be found partly on the confines of its percept centre and partly on that of its related annexe. This supposition is made because some words (especially names of things, persons, and places) are in closest relation with sensory centres; whilst others, such as verbs, adjectives, prepositions, and other parts of speech constituting the framework of language, are in closer relation with conceptual processes. These two modes of functional activity are, as I have said, absolutely inseparable from one another, and therefore the several word-centres must be in most intimate relation both with the sensory centres and with their annexes.

If the views above expressed be anything like an approximation to the truth, it may be judged how vain it would be to attempt to base our explanation of any of the different kinds of speech defect upon the supposed existence of some one separate centre for "ideation," "conception," or "naming" which is connected by means of commissures (long enough and separate enough to permit of isolated damage) with sensory centres on the one side and with motor centres on the other. I am pleased to find that the views at which I have arrived on this important subject—while they differ so much from those held by some of the most authoritative writers on speech defects—are nevertheless in very close accord with those formed by one very distinguished writer and thinker on these subjects—viz., the

[43] The Brain as an Organ of Mind, p. 636.
[44] Brit. Med. Jour., Nov., 1887.
[45] Le Progrès Médical, March 21st, 1885.
[46] On Aphasia, 1887, p. 123.
[47] Brain, 1889, p. 97, where Starr says: "The results of pathological observation fail to give any support to the hypothesis of an 'ideational centre' which Broadbent and Kussmaul have introduced into their diagrams."
[48] The Disorders of Speech, 1894, pp. 230 and 235. Wyllie, however, I think, tends to convey an erroneous impression by representing in a diagram on p. 278 of his work the seats of word revival in a lower plane and of percept revival in a higher plane, and assuming that the stimulation of Broca's centre takes place from the seat of percept revival rather than from the auditory word-centre. This seems to be also the position of Lichtheim, judging from his Fig. 7 and what he says in reference thereto, loc. cit., p. 477.
[49] Examples will be given later when speaking of the defects due to disabilities in the auditory word-centre.
[50] Neurologisches Centralblatt, 1894, pp. 674 and 809; and Gehirn und Seele, Leipzig, 1895.
[51] Since the above was written I have received from Déjerine the reprint of a communication made by him to the Société de Biologie, on Feb. 20th, 1897, in which he contests these views of Flechsig.
[52] Transactions of the Royal Medical and Chirurgical Society, 1872, p. 178.

late Dr. James Ross. Thus, in his work "On Aphasia," he gave expression to the following views (page 125):—"And on passing from thinking by percepts to thinking by concepts, and from that to thinking by abstracts, there are no new centres introduced, but only a complication upon complication of the one perceptive centre. All that can be said is that the correlative of perceptive thinking is excitation of that portion of the cortex of the brain which is directly connected with the sensory inlets; of conceptive thinking, excitation of portions of the cortex which are indirectly connected with them; and of abstract thinking, excitation of portions which are still more remotely connected with them. It must, however, be remembered that the effective working of the portions of the cortex which are remotely connected with the sensory inlets will in a great measure depend upon the integrity of those that are in direct relation with them. ..... Let us now attend to the effects of dissolution of this structure. A destructive lesion of the portions of the cortex which are most remotely connected with the sensory inlets would destroy the capacity of the patient for highly abstract reasoning, and would no doubt inflict considerable damage on the language in which abstract thought is embodied, but this condition would not be recognised as an aphasia; and even the intermediate portions of the cortex in which conceptive thought is carried on might be seriously damaged without giving rise to a special speech disorder, inasmuch as any impairment of speech which might be present would only be regarded as a part of a general decay of the reasoning faculties. When, however, the lesion is situated in or near to the sensory inlets a disorder of language results which is out of all proportion to the general impairment of the reasoning faculties." All that has been set forth above is thoroughly in harmony with the dictum of Max Müller, who says: "Though sensations, percepts, and concepts may be distinguished, they are within our mind one and indivisible. We can never know sensations except as percepts, we can never know of percepts except as incipient concepts."

The Goulstonian Lectures

ON

THE CHEMISTRY AND PATHOLOGY OF GOUT.

Delivered before the Royal College of Physicians of London,

BY ARTHUR P. LUFF, M.D., B.Sc, F.R.C.P. LOND.,

PHYSICIAN IN CHARGE OF OUT-PATIENTS IN ST. MARY'S HOSPITAL, AND LECTURER ON FORENSIC MEDICINE IN ST. MARY'S HOSPITAL MEDICAL SCHOOL.

LECTURE II.[1]

Delivered on March 25th.

THE SOURCES AND FORMATION OF URIC ACID IN PATHOLOGICAL CONDITIONS OTHER THAN GOUT IN WHICH IT APPEARS IN THE BLOOD.

MR. PRESIDENT AND GENTLEMEN,—Although I hold the opinion that in health uric acid is only formed in the kidneys, and that the uric acid found in the blood in gout is absorbed from the kidneys after formation in those organs, yet it must be borne in mind that there are other diseases besides gout in which uric acid appears in the blood, and in connexion with which it has most probably *not* been absorbed from the kidneys, but has been formed elsewhere in the system. I will therefore briefly consider what these pathological conditions are and what are the probable sources of the uric acid in such conditions. The investigations of von Jaksch, Klemperer, and others have conclusively established that the presence of uric acid in the blood is not a pathognomonic sign of gout, and also that uric acid may appear in quantities in the blood and be eliminated without causing gout.

Blood disorders accompanied by the presence of uric acid in the blood.—Von Jaksch[2] found uric acid in the blood in cases of both primary and secondary anæmia, pernicious anæmia, and splenic tumour. He also found it in the blood in conditions inducing dyspnœa—notably in heart disease, pleurisy with effusion, pulmonary catarrh, pneumonia, and emphysema. Klemperer[3] has recently confirmed the results of von Jaksch and others as to the presence of uric acid in the blood in leucocythæmia, and many observations have been made of the increased excretion of uric acid that accompanies this disease. Laache[4] found a daily excretion of 3·7 grammes (nearly six times the average normal amount) in a patient suffering from this disease. Bartels[5] observed a daily excretion of 4 grammes (more than six times the average normal amount). Stadthagen[6] found a daily excretion of 2 grammes (three times the average normal amount). Bohland and Scherz[7] found a daily excretion of 1·4 grammes (twice the average normal amount). Von Jaksch[8] concluded that the occurrence of uric acid in the blood was due to diminution of the oxidising activity of the red corpuscles and to consequent storing up in the blood of the uric acid formed in the body, which, according to his view, is normally oxidised and destroyed. Horbaczewski's view, which will be considered later, that the formation of uric acid is due to the disintegration of leucocytes, would equally apply, since in all the diseases in which von Jaksch found uric acid in the blood leucocytosis was present. Moreover, there is no experimental proof to support the view that uric acid is oxidised and destroyed by oxygenated blood; on the contrary, there is experimental proof that the process of oxygenation can, in the presence of nuclein, produce uric acid instead of destroying it.

Renal diseases accompanied by the presence of uric acid in the blood.—Von Jaksch[9] found uric acid in the blood in all the cases of renal disease that he examined, the proportions being especially large in cases of granular kidney disease and uræmia. Von Jaksch's results were confirmed by Klemperer,[10] who examined the blood in cases of contracted kidney and found uric acid always present.

Lead poisoning accompanied by the presence of uric acid in the blood.—Sir Alfred Garrod[11] examined the blood of nine patients suffering from plumbism and who had never suffered from gout, and found appreciable quantities of uric acid in the blood of seven out of the nine. Dr. Oliver[12] refers to the early stage at which anæmia becomes a prominent symptom of lead poisoning. Although no doubt the kidney mischief which occurs in connexion with plumbism is responsible for the appearance of most of the uric acid in the blood by interfering with its excretion by the kidney cells, yet it is possible that a small amount of the uric acid may result from the slight leucocytosis accompanying the anæmia of plumbism.

Fevers and absence of uric acid in the blood.—Von Jaksch found no uric acid in the blood of patients suffering from typhoid fever, intermittent fever, and acute rheumatism, nor in connexion with diseases of the liver, stomach, and intestines, when unaccompanied by anæmia. His observations seem undoubtedly to prove that the presence of uric acid in the blood is not a factor in the production of the so-called uric acid intoxication of fever. Fever, indeed, appears to influence unfavourably the production of uric acid. It is evident that in connexion with certain diseases, especially those in which leucocytosis occurs, uric acid may be present in quantities in the blood and yet not give rise to gout. The reason, in my opinion, is that in such diseases the kidneys being in a sound condition can readily eliminate the uric acid. A proposition that I wish to put forward is that the seat or site of formation of uric acid is a different one in gout to what it is in those blood diseases and disorders in which uric acid occurs in the blood without the development of gout. In gout I believe that all the uric acid present in the blood is absorbed from the kidneys owing to some affection of those organs—functional or organic—which interferes with the proper excretion of the uric acid manufactured in the kidneys. In cases of contracted granular kidney disease and in cases of plumbism the uric acid present in the blood is, I believe, derived from

[1] Lecture I. was published in THE LANCET of March 27th, 1897.
[2] Deutsche Medicinische Wochenschrift, 1890, xxxiii., p. 741.
[3] Ibid., 1895, xxi., p. 655.
[4] Klinische Urinanalyse, 1892, p. 31.
[5] Deutsches Archiv für Klinische Medicin, Band i., p. 13.
[6] Virchow's Archiv, Band cix., p. 390.
[7] Pflüger's Archiv, Band xlvii., p. 13.
[8] Ueber die Klinische Bedeutung von Harnsäure und Xanthinbasen im Blut, 1890.
[9] Loc. cit.
[10] Loc. cit.
[11] A Treatise on Gout, 1876, p. 241.
[12] Goulstonian Lectures on Lead Poisoning, THE LANCET, March 7th, 14th, and 21st, 1891.

the same source—viz., from the damaged kidneys. In blood diseases and disorders the uric acid present in the blood is probably derived from the nuclein of the leucocytes, and as the kidneys are in a sound condition it is readily excreted by them.

An interesting question that I will now consider is whether gout ever occurs without preceding kidney mischief of some kind or other; that is, whether if the kidneys remain sound it is possible for such an accumulation of uric acid to occur in the system as to produce an attack of gout. We will first ascertain whether there is any evidence that an affection of the kidneys (functional or organic) is associated with or precedes gout.

ASSOCIATION OF KIDNEY AFFECTIONS WITH GOUT.

In the first place I think that the old idea must be abandoned that the kidneys can only eliminate a certain amount of uric acid. That the healthy kidneys are capable of separating from the blood and excreting large quantities of uric acid is shown by the observations, previously referred to, of Laache, Bartels, Stadthagen, and Bohland and Scherz on the excretion of uric acid in cases of leucocythæmia. In this disease the blood is laden with uric acid, and all these observers found a greatly increased daily excretion of uric acid, varying from twice to over six times the normal amount. This large excretion of uric acid by the kidneys shows that urates do not themselves cause damage to the uric acid secreting cells of the kidneys.

Views as to the association of gout and kidney disease.—Sir Alfred Garrod, Sir William Roberts, and Levison all attribute the accumulation of uric acid in the blood of gouty persons to deficient excretion rather than to increased production. Sir Alfred Garrod holds the view that among the causes exciting a gouty fit is a functional failure of eliminating power for uric acid on the part of the kidneys. He also considers that this early functional failure is followed in cases of chronic gout by structural kidney disease. His view is that the uric acid present in the blood in gout is formed in the kidneys and is absorbed from them into the blood. This view is quite compatible with the theory that a defective capacity of the kidneys for the excretion of uric acid is the primary pathological cause of gout. Levison[13] states that gout is not accompanied by leucocytosis, and therefore the nuclein of leucocytes is not available for the production of uric acid. He considers that gout cannot be developed unless a primary renal lesion is present, and that this is almost invariably of the nature of an interstitial change. Vogel[14] estimated, in three cases of chronic gout, the intake of nitrogen by analysis of the food and the output of nitrogen in the urine and the fæces. He found that there was a nitrogen retention greatly in excess of what could be attributed to a retention of uric acid. Vogel states that his patients behaved in this respect like sufferers from renal disease, although the clinical signs of granular kidney mischief were wanting in all the cases. It must be borne in mind that the absence of the clinical signs of kidney disease does not necessarily imply integrity of those organs.

Association of renal disease with the presence of uric acid in the blood, and with uratic deposits in the joints.—As previously mentioned, von Jaksch found considerable quantities of uric acid in the blood in all the cases of diseases of the kidneys that he examined, and his results were confirmed by Klemperer. It is well known that uratic incrustation of articular cartilages is not uncommonly found at the post-mortem examinations of subjects who have never been known to suffer from ostensible gout during life. Dr. Ord and Dr. Greenfield[15] examined a number of bodies in the post-mortem room for the existence of uratic deposits in the joints and the presence of kidney disease. Among ninety-six cases presenting lesions of the kidneys uratic deposits were found in the joints of eighteen. Dr. Norman Moore,[16] who bases his observations on the results of a large number of post-mortem examinations, states that chronic interstitial nephritis is found in a large proportion of those bodies in which sodium urate is to be seen in the joints. He found that chronic interstitial nephritis is not invariably accompanied by the presence of sodium urate in the articular cartilages, though it is usually accompanied by some traces of degeneration in some of the articular cartilages. He examined the following number of cases, in all of which, as far as could be ascertained, the patients had never suffered from ostensible gout.

Kidney disease.	No. of cases.	Uratic deposit in joint or joints.
Chronic interstitial nephritis...	53	25
Chronic parenchymatous nephritis	11	2

Levison[17] is a strong supporter of the view that there is always some degree of antecedent renal disease connected with gout. In reply to criticisms of this view he points out that the post-mortem examinations of gouty patients have generally shown renal lesions, and that the few exceptional cases are open to criticism. He states that all the post-mortem examinations of patients dying from granular kidney disease at the Communal Hospital, Copenhagen, during a period of fourteen months showed uratic deposits in one or other of the joints, although most of the patients were not known to have had any definite gouty attack. I thought that it would be a matter of interest to ascertain the proportion of cases of uratic deposition in the joints occurring in subjects in whom granular disease of the kidneys was found at the post-mortem examination, and in connection with whom the previous history as to the occurrence or not of gout was known. For this purpose I have obtained the help of some of the pathologists at the London hospitals, who have kindly examined the joints in such cases whenever they were able to do so. I have collected altogether the results of seventy-seven such examinations, for which I am indebted to the kindness of Dr. Cyril Ogle, Dr. F. J. Smith, Dr. Hebb, and Mr. Jackson Clarke. These seventy-seven cases were all cases of granular kidney disease, and in forty-one cases uratic deposits were found in one or more of the joints. The distribution of uratic deposits among the gouty and non-gouty cases is shown in the following table.

TABLE II.—*Showing the Results of the Examinations of the Joints of Seventy-seven Cases of Granular Kidney Disease.*

——	No. of cases.	Uratic deposit in joint or joints.
Known to have had gout... ...	10	10
Never known to have had gout	67	31
Totals	77	41

In the ten patients known to have had gout uratic deposits were found in one or more of the joints of all, and the kidney conditon was in every case described as "markedly granular" or "fairly granular." Amongst the sixty-seven cases of granular kidney disease in patients not known to have suffered from previous gouty attacks uratic deposits were found in one or more of the joints of thirty-one—that is, in 46 per cent. of the cases, which closely agrees with the 47 per cent. found under similar conditions by Dr. Norman Moore. In these sixty-seven cases are included all cases which showed the existence of any granular kidney disease, but several of the cases in which no uratic deposits were found were described as only "slightly granular" or "faintly granular." If from the sixty-seven cases a selection is made of those described as "markedly granular," or as "typical granular" kidneys, then the proportion of cases in which uratic deposits were found in the joints appears as follows.

——	No. of cases.	Uratic deposit in joint or joints.
Marked granular kidney disease	26	20

Thus it is seen that among the cases of marked granular disease of the kidneys occurring in persons who were never known to have suffered from ostensible gout during life uratic deposits were found in the joints of 77 per cent. of

[13] The Uric Acid Diathesis, 1894.
[14] Zeitschrift für Klinische Medicin, Band xxiv., p. 512.
[15] Transactions of the International Medical Congress at London, 1881, vol. ii., p. 101.
[16] St. Bartholomew's Hospital Reports, vol. xxiii., 1887.
[17] Zeitschrift für Klinische Medicin, 1894, xxvi., p. 293.

the cases. These results, taken in conjunction with those of Dr. Norman Moore and of Levison, show that kidney disease exercises a powerful influence in causing an accumulation of uric acid in the blood and consequently in producing uratic deposits in the joints.

It has been urged that if kidney disease, with the consequent diminished excretion of uric acid, be the primary factor in the causation of gout, signs of kidney mischief would always manifest themselves prior to an attack of gout, and that very few such cases have ever been recorded. But, in the first place, it must be remembered that such signs are not usually looked for, and, in the second place, they need not necessarily reveal themselves clinically. It is well known that contracted granular kidney is not always evidenced either by the occurrence of albuminuria or of dropsy. The contention that if organic renal failure existed the urea excretion would probably be equally affected together with that of uric acid does not hold good, if the view is adopted that uric acid is produced in the kidneys while urea is only eliminated by them. It is well known that in gouty subjects the kidneys have been found at the post-mortem examinations in a diseased condition when there have been no external manifestations during life of the existence of such renal mischief. That uratic deposits are frequently found in the kidneys of gouty subjects is a matter of common experience, but in the absence of such deposits the kidney may still be affected. Sir Dyce Duckworth believes that changes occur in the kidneys of gouty subjects quite independently of uratic deposits in these organs. It has been urged that the renal theory is difficult to harmonise with the hereditary character of gout. It is quite possible, however, that there may be in gouty subjects a hereditary tendency to the renal affection, since both Dr. Dickinson and Eichorst have shown that there is an hereditary tendency to granular kidney.

Kidney disease and gout alike caused by certain toxic agents.—Certain toxic agents which predispose to, or which excite, kidney disease are also known to produce gout. Lead gives rise to both chronic kidney disease and gout. In chronic lead poisoning proliferation of the epithelium of the urinary tubules first occurs, followed by granular atrophy and excessive formation of interstitial tissue. In numerous cases of chronic lead poisoning gout has developed. Very similar changes occur in the gouty kidney, and it seems reasonable to assume that the changes in that organ in both chronic lead poisoning and in gout so affect the excreting apparatus of the kidneys as to seriously diminish their power of eliminating uric acid. That lead poisoning gives rise to the accumulation of uric acid in the blood has been shown by Sir Alfred Garrod. Gout subsequently developed in two cases of plumbism in which the blood was found by him to be rich in uric acid. He also determined the excretion of uric acid in the urine of two patients to whom acetate of lead was medicinally administered. In both patients a well-marked diminution of uric acid in the urine occurred. It was also noticed that after the lead had been given for a day or two the excretion of the uric acid in the urine was suddenly diminished to a very small amount—a condition which usually lasted for a day or two. This points to the fact that lead exercises a marked inhibitory effect on the cells of the kidneys concerned in the excretion of uric acid. The action of the lead is not due to inhibition of the formation of uric acid, since in cases of plumbism the blood becomes charged with uric acid. Alcohol is another body which in excessive quantities gives rise to kidney mischief and which may also give rise to gout.

I think there is abundant evidence to show the connexion between kidney mischief and gout for the following reasons: (1) uric acid has always been found in the blood in cases of renal disease; (2) uratic deposits are fairly frequently found in the joints of persons who have suffered from renal disease, but who have never been known to have had ostensible gout; (3) kidney mischief is frequently met with at the post-mortem examinations of gouty subjects; and (4) certain toxic agents predispose to both kidney disease and gout.

Probable anatomical seat of the kidney affection causing gout.—The anatomical seat of the presumed kidney affection giving rise to the development of gout is probably in the epithelium of the convoluted tubes, as that has been shown by Levison[18] to be the primary seat of disease in granular kidney, and by Oliver[19] to be the seat of the kidney affection associated with lead poisoning. The increase of interstitial tissue is probably a secondary change. My own belief is that a functional affection of the kidneys always precedes any gouty manifestations, and that this functional affection may subside if the exciting cause of it be removed, or it may pass on to a structural lesion. It is the liability to this functional affection of the kidneys which, in my opinion, constitutes the hereditary factor of gout. Such functional affection may, however, be started by various agents and causes, among which are excessive indulgence in nitrogenous foods, wines, and beers, the toxic effect of lead, and the influence of nervous impulses, such as mental shocks, severe accidents, &c. If this view be correct, it is obvious that the kidney condition must always be considered in the treatment of gout, and that, given diseased organs incapable of eliminating the normal amount of uric acid, either some other channel for its elimination must be secured or its formation must be limited to the diminished output, so that absorption of it into the general circulation may be avoided. The retention of uric acid in certain cells of the kidney and its subsequent absorption into the blood is analogous, as Sir Alfred Garrod has pointed out, to an attack of jaundice. When no obstruction exists to the exit of bile from the biliary passages no appreciable amount of its colouring matter is found in the blood, but when its free elimination is checked then absorption of it into the blood speedily takes place.

[18] Loc. cit. [19] Loc. cit.

ORIGIN OF URIC ACID.

I now propose to discuss the various views as to the origin of uric acid, and to consider what its antecedents are and by what chemical processes or by what conjugations it results. A commonly received notion as to the origin of uric acid is that it results from a less perfect oxidation of the nitrogenous constituents of the tissues than occurs when urea is formed. According to this view urea is the ultimate product of the metabolism of nitrogenised tissues in mammals, the formation of uric acid being an intermediate stage of the metabolism. In birds and serpents it has been supposed that the nitrogen is eliminated in the form of ammonium urate without having undergone the further change into urea. This notion is mainly based on the observation of these two facts: (1) that uric acid by means of oxidising agents can be split up into urea and other substances; and (2) that in certain reptiles whose respiration is languid and whose temperature is low the kidneys excrete uric acid to the entire exclusion of urea. The inference that the production of the uric acid in such reptiles is the result of imperfect oxidation is, however, disproved by the well-known fact that birds, whose respiration is rapid and whose temperature is higher than that of mammals, also, like reptiles, excrete uric acid to the exclusion of urea. So that, although uric acid is a less highly oxidised product than urea, it is very doubtful whether it can be considered as an antecedent in the formation of urea.

Another commonly received notion is that gout is accompanied by an excessive formation of uric acid, which is usually attributed to the ingestion of a too highly nitrogenised diet, and especially to an animal one. Virchow,[20] however, considers that a too highly nitrogenised diet is not necessarily the cause of gout, because he has often observed gout in poorly fed convicts. Gout is certainly not incompatible with a vegetable diet, as amongst certain birds kept in captivity and living exclusively on grain uratic deposits have been observed around the joints. On the other hand, animal food does not necessarily produce uric acid in a healthy system, as is shown by its absence from the urine of some of the carnivora. It is true that the ingestion of very large quantities of proteid matter is followed by an increased production of uric acid, and *vice versâ*, but apparently it makes little, if any, difference whether the proteid matter is of animal or of vegetable origin. The only reason that a vegetable diet is less productive of uric acid than an animal diet is in the fact that the former is poorer in proteid material, and therefore to consume in the vegetable diet as much proteid matter as is ordinarily consumed in an animal diet would require the ingestion of a very large bulk of vegetable food. Therefore, the assumption is not altogether correct that the total daily excretion of uric acid is greater on an animal than on a vegetable diet. With the same intake of nitrogen in the two diets there is practically no difference in the uric acid output. This is shown by the experiments of Bleibtreu,[21] who examined his urine after

[20] Berliner Klinische Wochenschrift, 1884.
[21] Pflüger's Archiv, Band xlv., p. 401.

three days' flesh diet and after three days' vegetable diet. Although after the flesh diet there was a considerable rise in the amount of urea excreted, there was very little difference in the uric acid excretion. After the three days' flesh diet the uric acid excreted in twenty-four hours was 0·859 grm., while after the three days' vegetable diet it was 0·791 grm. Similar results were obtained by Hirschfeld,[22] who found that on a diet very poor in nitrogen he excreted daily 0·417 grm. of uric acid, on one rich in albumin 0·386 grm., and in a highly albuminous diet 0·492 grm. That the production of uric acid is not dependent, at all events, to any great extent, on diet is also shown by the fact that the same diet which in one class of animals will produce uric acid will in another class produce urea. Thus in the urine of the carnivorous lion and tiger there is a quantity of urea and but very little uric acid; on the other hand, the carnivorous python and boa excrete uric acid and no urea. Graminivorous birds excrete uric acid and no urea, whilst herbivorous mammals excrete quantities of urea and but little or no uric acid.

Sir William Roberts,[23] comparing the functions of the kidneys of birds and serpents with those of mammals, considers that an immense functional evolution has taken place in the mammalian kidney—that the evolution of mammalian urine has probably turned mainly on the point that the mammalian plan required that the renal excretion should be voided not in the solid or semi-solid form, but as a watery solution. This modification would require the discarding of the sparingly soluble uric acid as a medium for the elimination of nitrogen and the substitution of a nitrogenous substance readily soluble in water, such as urea. He considers it possible that the reason why this substitution has not been completely effected is that in that particular the mammalian type has not yet reached its ideal perfection and that the residuum of uric acid in mammalian urine may be something in the nature of a vestigial feature.

View that uric acid is formed from urea in the kidneys.—In mammalia, including man, and in birds uric acid is absent from the blood in health, while urea is always present in the blood. The blood of the renal artery is much richer in urea than the blood of the renal vein—according to Picard in the proportion of about two to one, according to Sir Alfred Garrod in the proportion of about three to one. From his most recent observations Sir Alfred Garrod[24] concludes that in birds and other uric acid excreting animals the metabolism of the nitrogenised tissues is exactly the same as in mammals. He believes that urea is the ultimate product of this metabolism, and that the uric acid is a subsequent product of the union of urea with some other principle or principles, glyccine probably being one of them. He regards the kidney as the organ whose function it is to manufacture uric acid from the nitrogenised matters brought in the blood, and considers it possible that the kidney contains different cells—some for the formation of urea and some for the formation of uric acid—and that the ratio between the two may vary in different classes of animals. One very strong argument against the formation of uric acid in the liver, spleen, connective tissues, &c., is that it is never present in the blood of mammals (including man) and of birds in health. If it were formed in such organs or tissues it must be conveyed in the blood to the kidneys. Since, according to Sir Alfred Garrod's and my own investigations, urea, and not uric acid, is found in the blood of birds, and since uric acid, and not urea, is found in the urinary excrement of birds, it seems highly probable that urea is at least one of the sources of formation of uric acid and that the change is effected in the kidneys. Dr. P. W. Latham's[25] explanation of the formation of uric acid in the animal economy is that the amido bodies, glycocine, taurine, leucine, and tyrosine, are normally converted in the liver into urea; but if from any cause the metabolism of glycocine be interrupted there would then be present in the liver glycocine and urea, which would produce hydantoic acid and then hydantoin, and the latter, which is freely soluble, would then pass on in the circulation to unite in the kidneys with urea or with biuret to form an ammonium salt of uric acid. Therefore according to this view the imperfect metabolism of glycocine is the primary and essential defect in connexion with the abnormal formation of uric acid in the human system.

According to Dr. Latham, the synthesis of uric acid from urea and glycocine takes place in the following steps:—

I. The urea and glycocine produce hydantoic acid:

$$\underset{\text{Urea.}}{CH_4N_2O} + \underset{\text{Glycocine.}}{C_2H_3(NH_2)O.OH} = \underset{\text{Hydantoic acid.}}{C_3H_6N_2O_3} + NH_3.$$

II. The hydantoic acid becomes dehydrated and forms hydantoin:

$$\underset{\text{Hydantoic acid.}}{C_3H_6N_2O_3} = \underset{\text{Hydantoin.}}{C_3H_4N_2O_2} + H_2O.$$

III. From more of the urea biuret is produced:

$$2\,\underset{\text{Urea.}}{CH_4N_2O} = \underset{\text{Biuret.}}{C_2H_5N_3O_2} + NH_3.$$

IV. By combination of hydantoin and biuret uric acid is produced:

$$\underset{\text{Hydantoin.}}{C_3H_4N_2O_2} + \underset{\text{Biuret.}}{C_2H_5N_3O_2} = \underset{\text{Uric acid.}}{C_5H_4N_4O_3} + NH_3 + H_2O.$$

The production of uric acid from urea and glycocline may be shown in a single equation as follows:—

$$3\,\underset{\text{Urea.}}{CH_4N_2O} + \underset{\text{Glycocine.}}{C_2H_3(NH_2)O.OH} = \underset{\text{Uric acid.}}{C_5H_4N_4O_3} + 3NH_3 + 2H_2O.$$

There are several reasons for believing that uric acid may be formed from urea and glycocine in the living organism. Horbaczewski produced uric acid by the interaction of urea and glycocine, and this result was confirmed by Dr. Latham. Glyccine is certainly formed in the human body, and probably is one of the antecedents of urea, for in man glycocholic acid, a compound of glycocine and cholic acid, passes in the bile into the intestine, and having served its purpose, and its constituents having been set free, the glycocine together with the other amido bodies, taurine, leucine, and tyrosine, pass in the portal blood to the liver, and probably in the hepatic cells are converted into urea. That glycocine is concerned in the production of uric acid is somewhat probable from the fact that in the carnivora, whose urine contains little or no uric acid, the bile contains no glycocholic but only taurocholic acid, and therefore yields no glycocine. The experiments of Hahn, Massen, Nencki, and Pawlow also support the view that glycocine is concerned in the formation of uric acid. They shut the livers of dogs almost completely off from the general circulation by diverting the portal circulation into the inferior vena cava, and found that, although the dogs passed less urea (the nitrogen being mainly eliminated as ammonium carbonate), the uric acid voided was considerably increased. Dr. Latham[26] believes that if an excessive amount of nitrogenous material is introduced into the portal circulation the portion which is least readily acted upon is the glycocine, the presence of which promoted the formation of uric acid. He considers that the primary defect in gout consists in the imperfect metabolism of glycocine.

It is quite possible that there is another means by which uric acid may be formed from urea. Gérard[27] has succeeded in converting uric acid into urea by the agency of micro-organisms derived from the air, and Magnier de la Source has effected a similar conversion by purely chemical agencies. The reaction is one of hydration, the uric acid uniting with the elements of water and yielding urea and tartronic acid, as shown in the following equation:

$$\underset{\text{Uric acid.}}{C_5H_4N_4O_3} + 4\,H_2O = 2\,\underset{\text{Urea.}}{CH_4N_2O} + \underset{\text{Tartronic acid.}}{C_3H_4O_5}.$$

One may therefore conjecture that the formation of uric acid from urea by the reversed action is at least possible. Though tartronic acid is not known to exist in the human body, it can be derived from lactic, malic, succinic, or tartaric acids. We may therefore conclude that the conversion of urea into uric acid by the agency of certain of the kidney cells is at least possible either by the conjugation of urea and glycocine or by the interaction of urea and tartronic acid, the last mentioned body being possibly derived from lactic acid.

Uric acid formation and liver disease.—If uric acid be formed in the kidneys from urea and glycocine brought from the liver, it can be readily understood that alterations in the metabolism of the liver must necessarily affect the formation and excretion of uric acid. This would explain why liver trouble of some kind or another is so commonly associated with gouty dyspepsia and also renders intelligible the fact that several observers have been unable to dissociate the

[22] Virchow's Archiv, Band cxvii., p. 301.

[23] Croonian Lectures on Uric Acid, Gravel, and Gout, 1892, p. 33. See also THE LANCET, June 18th and 25th, and July 9th and 16th, 1892.

[24] Proceedings of the Royal Society, 1893.

[25] Croonian Lectures, THE LANCET, April 3rd, 10th, 17th, and 24th, and May 1st, 1886.

[26] Loc. cit.

[27] Comptes Rendus, 1896, 123, pp. 185-187.

connexion between liver troubles and gout, and have therefore attributed the formation of uric acid to the liver. For instance, Dr. Murchison considered that gout is an hereditary disease by virtue of the transmission by parents to their offspring of a defective power of the liver, in virtue of which its functions are deranged with unusual facility; as a result of this derangement of the liver the metabolism of the albumin is to a great extent arrested at the stage of uric acid formation, instead of going on to the final stage of urea formation. Dr. George Harley considered that a strong relationship existed between gout and hepatic derangements. Sir Dyce Duckworth[27] is of opinion that "the liver is the organ in which in health uric acid is chiefly formed, and it is probably to derangement of function in this gland that we must look for over-production of this substance."

View that uric acid is formed from nuclein.—Horbaczewski[29] has shown that uric acid, as well as xanthin and hypoxanthin, can be prepared from spleen pulp. By digesting fresh spleen pulp with hot water till changes set up by bacterial agency are started he found that the fluid when freed from albuminous bodies contained xanthin and hypoxanthin, but no uric acid. By treating this fluid with arterial blood and keeping the mixture at from 40° to 50° C. uric acid forms in it after several hours. A similar result is produced by using as the oxidising agent either a dilute solution of hydrogen peroxide or an abundant supply of atmospheric air. Horbaczewski found that the nitrogen contained in the uric acid so formed was about equal in amount to the nitrogen contained in the xanthin and hypoxanthin (xanthin bases). So that there exists in the spleen nitrogenous substances which can be transformed, at all events in part, into xanthin bases or into uric acid. The xanthin bases when once formed cannot be further oxidised into uric acid. Horbaczewski brings forward proof that the substance which yields xanthin bases and uric acid is the nuclein of the spleen cells. It was found that when pure nuclein prepared from spleen pulp was dissolved in very weak alkali and digested with blood at 40° C. uric acid was formed. Sadowenj and Formanck have shown that uric acid can be prepared in a similar manner from almost all the tissues and organs of the body, and conclude that the nuclein contained in the cells is the mother substance.

It having thus been shown that uric acid can be prepared from nuclein outside the system, the next problem to solve was whether a similar decomposition also occurred in living human beings. Horbaczewski found that the excretion of uric acid can be increased either by the administration of nuclein with food or by the subcutaneous injection of a solution of it. Umber[30] found that the administration of a large amount (500 grammes per diem) of food like thymus, which contains a considerable quantity of nuclein, increases the excretion of uric acid as compared with its excretion when a similar amount of flesh is given. The same amount of liver given to one person caused an effect similar to that caused by thymus, but in others its action was less marked. Kidney and brain administered as food yielded nearly the same amount of uric acid as flesh.

From his experiments Horbaczewski concludes that uric acid is formed in health by the disintegration of nuclein, and that sudden variations in uric acid production may be due to the breaking up of leucocytes and conversion of their nuclein it to uric acid or xanthin bases within the system. It has been shown by many observers that a temporary or permanent leucocytosis is always accompanied by an increased excretion of uric acid. A relationship between the number of leucocytes in the blood and the excretion of uric acid is observable in human beings during fasting and after taking food. During fasting the number of leucocytes diminishes and the amount of uric acid excreted falls; after taking food the number of leucocytes increases and the amount of uric acid excreted rises. The increase in the number of leucocytes in the blood after a meal appears to be due, at all events in part, according to Hofmeister,[31] to the rapid increase of lymph cells in the adenoid tissue of the stomach and intestines during digestion, whence they are discharged into the lymph stream and finally into the blood. Gamprecht,[32] who uses the term "alloxur bodies" in Kossel and Krüger's sense, as meaning those bodies which have an alloxan and urea nucleus, and therefore as including, besides uric acid, xanthin, guanin, hypoxanthin, adenin, and their derivatives, found that in the exceptional cases of leucocythæmia in which the uric acid excretion is normal or diminished the alloxur bases are increased and that their amount varies directly with the amount of leucocytosis. He gives one case of his own in which this is shown very clearly, and points out that it forms an additional support to Horbaczewski's view that uric acid comes from degeneration of leucocytes and is formed from their nuclein.

From a consideration of all the work that has been done in connexion with leucocytosis and the excretion of uric acid it is clear that there is no constant ratio between the number of leucocytes and the amount of uric acid excreted, for there may be leucocytosis without increase of uric acid, as there may be an increase of uric acid without leucocytosis. I think that in cases of leucocythæmia, severe anæmia, &c., where uric acid is present in the blood, it is probably derived from the nuclein of leucocytes or other cells. It is, however, in my opinion, wrong to draw the further inference that the source of the uric acid excreted in health is the nuclein derived from leucocytes throughout the body. If such were the case, uric acid would be found in the blood in health, but, as previously shown, it is not. Moreover, in birds there is no special leucocytosis to account for the large formation and excretion of uric acid that occurs.

View that part of the uric acid is introduced ready formed in food.—Dr. Haig, who, in my opinion, wrongly ascribes to uric acid an almost universal *rôle* in the causation of disease, claims that the uric acid excreted in the urine comes from two sources—(1) the uric acid which is formed in the body out of nitrogenous food; and (2) the uric acid introduced into the body ready formed in certain articles of diet, such as meat, meat extracts, soup, tea, coffee, &c. He considers that flesh diet increases both the introduction and the formation of uric acid, a view which is opposed to the previously quoted experimental results obtained by Bleibtreu and by Hirschfield. Dr. Haig[33] gives the quantities of uric acid which a man may introduce into his system with an ordinary dinner as follows:—

					Grain.
8 ounces	soup,	containing	0·02 per cent.	uric acid =	0·70
2 ,,	fish,	,,	0·03 ,,	,, =	0·26
3 ,,	meat,	,,	0·04 ,,	,, =	0·52
½ drachm	meat extract,	,,	0·80 ,,	,, =	0·24
					1·72

As far as I can ascertain from Dr. Haig's writings he has never identified by the murexide test this uric acid reported to be present in these various articles of diet. Apparently, these estimations depend solely on the application of Haycraft's process to the articles of diet, and the subsequent calculation of the silver precipitate so obtained in terms of uric acid. Dr. Haig[34] writes: "I have all along felt that in applying Haycraft's process to extracts of tissues I was walking on dangerous ground as regards theoretical chemistry, and I have therefore been careful to point out that, while I gave figures of the amount of uric acid found in various animal foods by this process, the only satisfactory test of the amounts of these compounds contained is the physiological one of eating a known quantity of the substance in question, and watching the effects on excretion in the urine." That Dr. Haig's peculiar view as to the direct introduction of uric acid in articles of diet is an erroneous one is shown by the absence of uric acid from the blood of man and animals in health. Dr. Haig has also advanced the theory that normally there is a constant ratio of 1 to 35 between the uric acid and urea formation, and that if the uric acid excretion falls below this ratio it is due to the retention and storage of uric acid in the liver, spleen, kidneys, joints, and fibrous tissues, whereas an increase in the proportion of uric acid to urea is due to the washing out from its storage places of the deposited uric acid. According to this view the amount of uric acid produced in each individual is a constant factor, the variations in the amounts eliminated being due, on the one hand, to excessive storage, and on the other to the discharge of the stored up supply. This theory of the existence of a normal ratio of uric acid to urea, and of every departure from it being due to a pathological cause, is disproved by the following experiments. Bleibtreu and Schultze,[35] experimenting on themselves,

[27] A Treatise on Gout, 1889.

[29] Beitrage zur Kentnisse der Bildung der Harnsäure und der Xanthinbasen. Sitzungsberichte der Königlichen Akademie der Wissenschaften in Wien, C. iii., 1891.

[30] Zeitschrift für Klinische Medicin, 1896, 29, pp. 174–189.

[31] Archiv für Experimentelle Pathologie und Pharmakologie, Band xxii., p. 306.

[32] Centralblatt für allgemeine Pathologie und Pathologische Anatomie, 1896, vol. vii., p. 820.

[33] Brit. Med. Jour., 1894, vol. ii., p. 1299.

[34] Uric Acid as a Factor in the Causation of Disease, 1896, p. 9.

[35] Pflüger's Archiv, Band xlv., p. 401.

showed that the ratio between uric acid and urea can be considerably altered by means of the diet without the general health being influenced. 2. Dr. Herringham and Mr. Groves,[36] as the result of a series of experiments that they made, entirely fail to corroborate Dr. Haig's observations and think that either what was true for his system was not true for theirs, or that Dr. Haig's results were, to quote their own words, "inaccurate and deceptive owing to his having employed a very uncertain and inaccurate method for the estimation of uric acid." 3. The following results of the determinations that I have made of the total daily eliminations of uric acid and urea in the urine of a healthy adult man, and which consist of observations extending over a period of fifty days, show that the ratio of uric acid to urea varied from 1:28 to 1:55 (the average being 1:42), although throughout the entire period the individual remained in good health.

TABLE III.—*Fifty Daily Eliminations of Uric Acid and Urea of a Healthy Adult Man on a Mixed Diet.*

No. of ounces of urine per diem.	Uric acid excreted per diem (grammes).	Urea excreted per diem (grammes).	Ratio of uric acid to urea.
63	0·654	28·34	1:43
68	0·714	31·62	1:44
72	0·626	29·82	1:47
42	0·532	29·39	1:55
61	0·819	30·19	1:37
56	0·663	25·22	1:38
65	0·616	27·67	1:45
59	0·612	24·44	1:40
41	0·828	30·32	1:37
57	0·705	21·91	1:31
49	0·618	31·27	1:50
63	0·751	27·57	1:37
48	0·722	28·89	1:40
64	0·569	23·44	1:41
51	0·652	29·89	1:46
60	0·608	27·00	1:44
56	0·591	27·71	1:47
50	0·561	27·54	1:49
60	0·630	27·91	1:44
45	0·742	26·56	1:36
45	0·550	23·60	1:40
60	0·640	31·34	1:49
61	0·581	28·34	1:49
61	0·537	22·35	1:41
64	0·572	26·49	1:46
53	0·595	21·24	1:36
55	0·764	24·73	1:32
69	0·637	28·53	1:45
63	0·526	23·13	1:44
72	0·583	28·88	1:49
45	0·620	24·26	1:39
45	0·693	28·01	1:40
52	0·630	30·04	1:41
69	0·705	33·16	1:47
40	0·837	25·62	1:31
48	0·728	30·54	1:42
67	0·665	30·11	1:45
44	0·550	29·50	1:53
54	0·554	29·88	1:54
42	0·582	25·13	1:45
55	0·515	22·15	1:43
55	0·632	27·14	1:43
54	0·685	29·34	1:43
66	0·776	28·06	1:36
49	0·536	25·20	1:47
67	0·560	23·56	1:42
45	0·550	21·63	1:39
35	0·680	23·10	1:35
55	0·624	23·09	1:37
67	0·691	19·76	1:28

[36] Journal of Physiology, 1891.

TABLE IV.

—	Excretion of uric acid.	Excretion of urea.	Ratio of uric acid to urea.
Daily average in grammes	0·639	26·89	1:42
Daily average in grains	9·8	415·0	1:42
Average in twenty-four hours for each pound of body-weight (in grains)	0·07	3·19	—

It is evident from the above results that no constant ratio exists in a given individual between the excretion of uric acid and urea. Variations in the daily elimination of uric acid in healthy individuals are not due to the sweeping out of uric acid from the different organs and tissues into the blood, for uric acid is never found in the blood of healthy persons. Differences from day to day in the uric acid excretion probably depend upon the amount of glycocine leaving the liver and passing on to the kidneys; this factor would be affected by variations in the metabolism of the liver, which may be induced by changes in the quality or quantity of the diet, by the amount of exercise, and by various nervous influences. Dr. Latham[37] has suggested a possible reason why those persons who have a tendency to gout and who take little exercise tend to develop the disease. It is that insufficient muscular exercise tends to the formation of glycocine. This is seen in the case of horses, which when put to hard work eliminate benzoic acid in the urine, but if kept in the stable for some time benzoic acid appears in the urine in combination with glycocine as hippuric acid, which is benzoylglycocine.

Different modes of formation of uric acid in health and in blood disorders.—From a consideration of the various views as to the origin of uric acid I think it is evident that there are two distinct and different ways in which it may originate. 1. In health I believe that it is only formed in the kidneys, probably from urea and glycocine, and that it is at once eliminated in the urine. If from any functional or organic affection of the uric acid eliminating cells of the kidneys its proper excretion is inhibited, then it is absorbed into the general circulation and constitutes the store from which the uratic deposits of gout are formed. 2. In diseases which are accompanied by leucocytosis I believe that uric acid may be formed from the nuclein of leucocytes in the spleen and possibly throughout the system generally, but that such uric acid is readily eliminated by the kidneys which remain sound as regards their uric acid secreting structures; consequently gouty deposits never occur in connexion with such diseases. The two different modes of formation of uric acid might be distinguished as the urea-formation and the nuclein-formation of uric acid.

CAUSES OF URATIC DEPOSITION IN GOUT.

As I take the view that the uratic deposits of gout are derived from uric acid absorbed into the blood from the kidneys, I propose to consider now the various causes for its crystallisation from the blood and the reasons why it selects certain tissues as seats for its deposition. It is necessary to briefly consider (*a*) the form in which uric acid is absorbed into and circulates in the blood, and (*b*) the form in which it is deposited from the blood or fluids of the body.

Form in which uric acid exists in the circulation.—Sir William Roberts[38] has shown that the amorphous urate deposit of human urine is of the same composition as the solid or semi-solid urinary excrement of birds and serpents, the only difference being one of physical form. The deposit from human urine is amorphous, whilst the urinary excrement of birds and serpents consists of minute crystalline spheres. Sir William Roberts shows that this difference in physical form is a mere accident of molecular aggregation, since under certain conditions the amorphous urate deposit can be transformed into crystalline spheres, whilst the crystalline urinary substance of birds and serpents can be converted into amorphous deposit. Dr. Bence Jones[39] was the first to show that the amorphous urate deposit yielded to water a soluble moiety

[37] On the Formation of Uric Acid in Animals, 1884, p. 42.
[38] Loc. cit.
[39] Journal of the Clinical Society, 1862, vol. xv., p. 231.

consisting of true biurate and left a sediment consisting of pure uric acid, and from the results of his analyses he inferred that the amorphous urate deposit consisted of, or at least often contained, a molecule of biurate in loose combination with a further molecule of uric acid. Sir William Roberts took up and continued the investigation dropped by Dr. Bence Jones thirty years before, and has conclusively shown that a third order of uric acid salts—the quadriurates—exists and that the amorphous urate deposit of human urine and the urinary excretion of birds and serpents belong to this order, and consist of a true and definite compound of biurate and uric acid in the proportion of one molecule of each. Sir William Roberts concludes that the quadriurates are the physiological combinations of uric acid. They exist normally in the urine and constitute the only form in which uric acid exists in normal urine. All the morbid phenomena due to uric acid probably arise from secondary changes in the quadriurates. The amorphous urate or quadriurate deposit of urine is generally referred to as consisting of a mixture of the potassium, sodium, ammonium, and calcium urates. As far as I can ascertain, however, no quantitative determination of the bases in the deposit has yet been made. The nearest approach to it is an analysis made by Sir William Roberts[*] of a sample of amorphous urate deposit prepared by an artificial process with potassium carbonate, and which would therefore most probably contain more potassium than the natural deposit. I therefore considered it advisable to determine the actual bases present in the amorphous urate deposit and their relative proportions. The deposit was obtained from several gallons of acid urine passed by patients suffering from febrile diseases, and was collected in a filter and allowed to drain. It was decomposed by boiling with distilled water and excess of hydrochloric acid, allowed to cool, filtered from the deposited uric acid, and the filtrate, which then contained the bases in the form of chlorides, was evaporated to dryness. The residue was taken up with distilled water, filtered from the minute amount of uric acid left in solution after the precipitation of the bulk of the acid, and evaporated to dryness. Part of the residue was submitted to qualitative analysis and found to consist of ammonium, sodium, and potassium, with very small traces of calcium and magnesium. The amounts of ammonium, sodium, and potassium were then estimated in the usual manner in the other portion, when their relative quantities were found to be as follows:—

	Parts per 100.
Ammonium	46
Sodium	40
Potassium	14

These amounts calculated as the respective quadriurates would approximately give the following composition for the amorphous uratic deposit that naturally forms in acid febrile urines: 7 molecules $NH_4HC_5H_2N_4O_3$, $H_2C_5H_2N_4O_3$ (ammonium quadriurate); 5 molecules $NaHC_5H_2N_4O_3$, $H_2C_5H_2N_4O_3$ (sodium quadriurate); 1 molecule $KHC_5H_2N_4O_3$, $H_2C_5H_2N_4O_3$ (potassium quadriurate). The uric acid which is formed in the kidneys is probably at once converted into the mixture of these three quadriurates, which in the normal state are then excreted dissolved in the urine. If, however, any absorption of them takes place into the blood, as probably occurs in the gouty state, the ammonium and potassium quadriurates would be converted by the sodium carbonate of the blood into sodium quadriurate, which would constitute the sole compound of uric acid circulating in the blood. It is from this body that the sodium biurate, of which the gouty deposits consist, is formed.

Formation of the sodium biurate from the quadriurate.—Sir William Roberts investigated the behaviour of free uric acid with blood serum and kindred media with the object of endeavouring to throw light on the mode in which sodium biurate originates in the body and on the conditions which control the precipitation of sodium biurate in the gouty system. He worked with solutions of uric acid in blood serum and in a standard solvent which was prepared as follows.

Composition of Sir William Roberts's standard solvent.—Sodium chloride, 0·5 gramme; sodium bicarbonate, 0·2 gramme; and distilled water, 100 c.c. This solution represents the blood serum, in so far as its saline ingredients are concerned. Sir William Roberts found that it reacted with uric acid and the urates in the same manner as blood serum itself, and in the same manner as a solution comprising all the salts of the serum in their proper proportions. He found that blood serum and the standard at the temperature of the human body both dissolved uric acid to the extent of about one part in 500, thus exhibiting about twenty times the solvent power that the same media exercise on sodium biurate. The chemical and solvent power is dependent on the sodium carbonate contained in them, and is due to that body converting the uric acid into sodium quadriurate. This sodium quadriurate which remains in solution is gradually converted by the excess of sodium carbonate into sodium biurate, and this on account of its lesser solubility is eventually precipitated in the crystalline form. Sir William Roberts infers from these results that in the normal state uric acid is primarily taken up in the system as quadriurate, and that as such it circulates in the blood. The detained quadriurate, circulating in a medium rich in sodium carbonate, is gradually transformed by the latter into sodium biurate, which is less soluble and is probably less easily excreted by the kidneys than the quadriurate. This biurate is probably not precipitated at once, since it would most probably pass at first into the hydrated or gelatinous condition, which is a much more soluble modification of sodium biurate than the crystalline form; but with due lapse of time and increasing accumulation it passes into the anhydrous or crystalline condition, and as this form is almost insoluble precipitation of it occurs or is likely to occur. The reason that in leucocythæmia and other blood diseases no uratic deposits occur is that the uric acid produced in the various organs or tissues is discharged into the blood as a quadriurate, and as this requires some hours for its maturation before it is possible for it to deposit sodium biurate there is abundant time for the kidneys to eliminate it, provided these organs are sound. In connexion with gout, if the view be correct that defective elimination of uric acid by the kidneys always occurs, the conditions are quite different. In gout uric acid is absorbed from the kidneys into the general circulation owing to the partial failure of the uric acid excreting function of the kidneys. The uric acid is absorbed as the sodium quadriurate, which, dissolved in the blood, gradually passes through the maturation process and forms sodium biurate. When the amount of the biurate in the blood is more than that fluid can retain in solution then deposits of it occur in those tissues which, either on account of having received previous slight injuries or because of their poor vascular supply, specially favour its deposition.

SEATS OF URATIC DEPOSITS IN GOUT.

Uratic deposits are found almost exclusively in structures belonging to the connective tissue class—in cartilages, ligaments, tendons, and in the cutaneous and subcutaneous connective tissue. They are conspicuously absent from the muscular tissue, and from the substance of the liver, spleen, brain, and lungs. Uratic deposits have been very occasionally found in the following places: In the mitral and aortic cardiac valves, in atheromatous patches in the aorta, in the walls of veins, in the crico-arytenoid ligaments, in the vocal cords, in the walls of bronchial tubes, in the mucous follicles of the pharynx, upon the meninges of the brain and spinal cord, upon the spinal nerve sheaths, in the sclerotic coat of the eye, and the fibrous envelope of the retina. It is always in the fibrous tissue which participates in the formation of the nervous envelopes that the deposit is found. Uratic crystals have also on two occasions been detected in the sputa of gouty patients. Sir William Roberts considers that the visceral neuroses and the thrombosis and embolism met with in gout are not the result of the dissolved uric acid in the blood, but are due to precipitation of minute crystals of sodium biurate either in the substance of the organs or in the blood itself.

Anatomical seat of the deposit in cartilages.—The uratic deposit first occurs in the central portion of articular cartilage—a point farthest from the network of nutrient capillaries and a point whose nutrition is more easily retarded. It is also probably the point of greatest pressure; hence a long walk, a dance, or similar violent exercise may precipitate an attack of gout. Uratic deposits occur in cartilages, ligaments, synovial membranes, and their fringe-like processes. In synovial membranes the deposit is not on the surface, but in the subserous tissue. Ebstein states, as the result of the examination of a typical gouty knee-joint,

[*] Loc. cit., p. 20.

that directly under the surface of the cartilage a very shallow tissue layer exists in which crystals are wanting, and in the layer immediately beneath this the crystals are most plentiful. He agrees with Sir Alfred Garrod that only two-thirds of the thickness of the cartilage is usually infiltrated, although exceptionally—as shown by Cornil and Ranvier—the whole cartilage may be infiltrated. With regard to the exact relation of the uratic deposit to the various elements of articular cartilage the cartilage cells are held to be the centres of primary deposit by Cornil and Ranvier, Charcot, Rindfleisch, Budd, and Garrod. Cornil and Ranvier consider that nutritive disturbances in the cartilage cells precede the deposition of sodium urate. Rindfleisch and Budd, however, consider that the cartilage cells do not take any active part. Some observers, including Sir Dyce Duckworth, consider that the deposition occurs quite indiscriminately, not selecting for its original site any particular element of the cartilage. Others, as Bramson, Rokitansky, and Auguste Foerster, think that urates deposit in the intercellular cartilaginous substance.

THE ADMINISTRATIVE TREATMENT OF UNDEFINED CASES CERTIFIED AS SCARLET FEVER.

BY FREDERICK DITTMAR, M.A., M.D. GLASG.,

AND

JOHN BROWNLEE, M.A., M.B. GLASG.,

LATE AND PRESENT ASSISTANT MEDICAL OFFICERS IN CHARGE OF THE CITY OF GLASGOW FEVER HOSPITAL, KENNEDY-STREET.

IN this communication we intend giving an account of the management of the undefined cases admitted to the City of Glasgow Fever Hospital, Kennedy-street, from November, 1895, to November, 1896. Prior to the former date there was no arrangement for the special observation of cases of this nature. The hospital, which is exclusively employed for the treatment of scarlet fever, consists of fourteen wards built on the pavilion system, and has accommodation for about 320 patients. The pavilion chosen for the purpose of isolation consists of three divisions separated one from another by brick partitions which extend from floor to ceiling, while each division has a separate communication with the outside. Two of them have a capacity of 16,500 cubic feet each, and the third of 8000 cubic feet. The last has also separate latrine accommodation and bathroom.

The patients sent to the pavilion were of three classes: (1) cases in which the appearances on admission did not justify a positive diagnosis of scarlet fever; (2) cases where the symptoms and appearances suggested some other disease—e.g., tonsillitis or non-specific erythema; and (3) cases of undoubted illness where the symptoms were obscure, but suggestive of some other infectious disease—e.g., enteric fever. Cases in which some other infectious disease was frankly present were immediately transferred to the Belvidere Fever Hospital without admission to the wards.

The two larger divisions were used for the first two classes, and the smallest division for the third class of cases. The whole pavilion was under the supervision of a very careful and experienced charge nurse whose powers of observation could be relied on, while each division had its special staff of day and night nurses. During their residence in the ward the patients were carefully observed for signs of scarlet fever, the urine being examined twice daily for albumin and evidence of desquamation carefully looked for. As soon as desquamation became definite or scarlet fever complications showed themselves the patient was transferred to a scarlet fever ward, where he completed the statutory period of eight weeks in hospital. Cases which did not turn out to be scarlet fever were kept in the isolation ward for a period varying with the nature of the case, but as a rule were not dismissed under four weeks, which we considered long enough for any such definite evidence as desquamation or nephritis to develop. None of the cases dismissed from the isolation ward were sent back to hospital with evidences of scarlet fever. The main objection which we have heard raised against the kind of arrangement adopted by us is that now and again patients who ultimately prove to have scarlet fever are mixed with those who do not, and thus may infect the others. Our experience seems to show that this fear is more or less baseless, as no case of scarlet fever occurred in the isolation ward.[1] We tried to minimise the risk of infection by putting the patients at as great a distance from one another as possible and allowing at least 4000 cubic feet of air space to each. We also cautioned the nurses to take special care when attending a patient the subject of any inflammatory secretion by which infection might be carried.

The number of cases observed by us amounted in all to 45, and they fall into the following groups, of the more important of which we give typical examples. Of the 45 cases observed, 11 (24·4 per cent.) ultimately proved to be cases of scarlet fever, 6 (13·3 per cent.) belonged to the class of doubtful scarlet fever, and 28 (62·2 per cent.) were not scarlet fever. The last class was made up as follows: tonsillitis, 11 cases; non-specific eruptions, 4 cases; dermatitis, 2 cases; cellulitis, 2 cases; measles (?), 2 cases; rotheln (?), 1 case; broncho-pneumonia (one complicated with marasmus), 2 cases; gangrenous ulceration of throat, 1 case; general tuberculosis (?), 1 case; and not classed, 2 cases.

CASES 1 AND 2. *Examples of cases ultimately classed as scarlet fever.*—A girl, aged thirteen years, was admitted to hospital on Jan. 31st, 1896, with a history of illness beginning two days previously with sore-throat, sickness, and vomiting. A rash was said to have been seen on the hands. On admission there was no evidence of a scarlet fever rash and the temperature was 100°F. The faucial pillars and soft palate were injected, and there were specks of creamy exudation in the follicles of the tonsils. The glands at the angle of the jaw were slightly enlarged. On Feb. 6th characteristic desquamation was observed, beginning on the neck; slight albuminuria had been observed for a few days prior to this. The patient, who had been sent to the isolation ward on admission, was transferred to a scarlet fever ward, from which she was dismissed on April 4th.

A girl, aged six years, was admitted to hospital on Sept. 5th, 1896, with a history of illness beginning three days before with sore-throat. A faint rash was said to have been observed on the second day on the limbs. On admission there was no evidence of a scarlet fever rash; the temperature was 100·2°F.; the pulse was 100; the tongue was slightly furred; the fauces and tonsils were acutely congested and there was exudation in the follicles of the tonsils; and the cervical glands were slightly enlarged. No definite desquamation was observed in this case. The patient suffered from enlarged cervical glands, rheumatic pains in the joints, and (in the third week) albuminuria. On Oct. 4th she was transferred to a scarlet fever ward, from which she was dismissed well on Nov. 4th.

CASE 3. *Example of cases classed as doubtful scarlet fever.*—A girl, aged five years, was admitted to hospital on July 13th, 1896, with a history of illness beginning five days previously with sore-throat, sickness, and vomiting. No rash had been observed. On admission there was no evidence of scarlet fever rash. The temperature was 101·2°F. and the pulse was 120. Conjunctivitis and coryza were present; the lips were excoriated; there was herpes on the left cheek; the throat was congested generally, and the tongue slightly furred. A trace of albuminuria was observed for a day or two after admission, but not afterwards. Later a few pinholes were observed on the pads of the distal phalanges of the fingers, but there was no distinct desquamation. She was dismissed well on Oct. 21st, having been kept in on account of an accident.

CASE 4. *Example of cases classed as tonsillitis.*—A boy, aged nine years, was admitted to hospital on Nov. 22nd, 1895, with a history of illness beginning two days previously with headache and sore-throat. There was no history of rash. Two other members of the family, suffering from undoubted scarlet fever, were admitted to the hospital a few days before. On admission there was no evidence of a rash; the

[1] It happened during a press of work that one division of the isolation ward was used for a short time for cases of acute scarlet fever which had been sent in suffering from a concurrent attack of measles. The division was fumigated with sulphur and the windows were left open for two months before it was again used for isolation purposes. A case of simple tonsillitis was then placed there alone, with special nurses, and three weeks after admission the patient developed scarlet fever. The only source of infection at the time seemed to be the dust of the ward, and it has little bearing on our general contention.

temperature was 99·4° F. The throat was mildly, if at all, injected; the tonsils were chronically enlarged, and the tongue was covered with a thin white fur through which the papillæ appeared prominent. No desquamation or scarlatinal complication supervened, and the patient was transferred to the isolation ward on Dec 7th, from which he was dismissed on Jan. 1st, 1896, nothing having occurred to warrant the diagnosis of scarlet fever.

CASE 5. *Example of cases classed as dermatitis.*—A man, aged twenty-one years, was admitted to hospital on April 8th, 1896, with a history of illness beginning two days before with sickness and headache. A rash was seen on the second day. The patient said that he had had a similar condition before. On admission there was a general erythema of the forearms and of the legs below the knees. The tongue was furred and the throat generally was somewhat congested. The temperature was 100·4° F. A desquamation followed over the parts affected with the erythema. He was dismissed on May 5th.

CASE 6. *Example of cases classed as cellulitis.*—A boy, aged two and a half years, was admitted to hospital on July 15th, 1896. No history accompanied the patient. The child had been dismissed from the Belvidere Fever Hospital after an attack of measles on July 6th. On admission to the City of Glasgow Fever Hospital, Kennedy-street, a dark patchy rash was present on the chest, limbs, and ears; the lips were dry, cracked, and covered with crusts; the dorsum of the tongue was covered with white patches; the left cheek was swollen and glazed; but the mucous membrane of the mouth looked natural. The left forearm and hand were swollen, and the tissues of the upper arm and axilla were swollen and red and pitted on pressure. There was no albuminuria. The temperature was 103° F., the pulse was 160, and the respirations were 60. Free incisions were made in the arm, but the cellulitis spread, and death occurred on July 17th.

CASE 7. *Case of ulcerative inflammation of the throat (non-scarlatinal).*—A boy, aged three years, was admitted to hospital on Feb. 1st, 1896, with a history of illness beginning two days previously with sore-throat. There was no history of rash, and on admission there was no evidence of a rash. The temperature was 101° F. The fauces were injected, and the tonsils were large, the glands in the neck being slightly enlarged. The tongue was furred, but the papillæ were not injected. Coryza and conjunctivitis were present. Nothing suggestive of a scarlet fever or measles rash was observed. The local condition in the throat became worse with rapidly advancing ulceration and necrosis, resulting in death on Feb. 10th. A post-mortem examination was not allowed.

CASE 8. *Case of non-specific eruption.*—A woman, aged twenty-seven years, was admitted to hospital on Dec. 19th, 1895. The patient stated that an eruption had been observed two days before, unaccompanied by malaise or sore-throat. She had been eating some patent sweetmeat for some days before. On admission the temperature was 98·4° F. The throat and tongue were natural. There was a general erythema over the upper extremities; over the forearms, in addition, were numerous, slightly raised erythematous spots, fading on pressure. Over the legs below the knees and on the dorsa of the feet there was a general erythema, fading on pressure. On the extensor aspect of the thighs there was a distinctly punctiform mottling, while over the adductor aspect the mottling was retiform. It did not fade on pressure. The trunk was quite free from any erythema or mottling. In the course of four days the eruption had completely faded, and the patient was dismissed on Dec. 25th.

The cases which proved to be scarlet fever may be dismissed with the remark that the certifying practitioner having seen the case earlier had probably more definite and specific signs on which to found his diagnosis, Case 1 affording an example of this. We would call attention to Case 2; in this patient no desquamation was observed, though the child suffered from well-marked scarlatinal sequelæ—viz., enlarged cervical glands, rheumatic pains in the joints, and albuminuria.

Of the cases of doubtful scarlet fever we give Case 3 as a fairly typical example. A brother admitted at the same time probably had scarlet fever. He also was considered doubtful at first, but was after a time transferred to a scarlet fever ward on account of desquamation on the legs. He was dismissed from the latter after five weeks' residence without having contracted scarlet fever.

As regards cases of tonsillitis no great difficulty is experienced when they occur singly in a family none of the other members of which are suffering from scarlet fever; but when they arise in a family in which one or more of the members are suffering from scarlet fever they are a cause of great anxiety to the physician in attendance. Attacks of this nature are considered by many authorities to be specific and infectious, and yet they do not seem to confer immunity on the person attacked. We have a good example of this in the family the case of one member of which is reported *in extenso* (Case 4). On the same day as Case 4 a younger brother was admitted. A day or two later an elder brother and a sister were also sent to the hospital. The history in each case was similar to that of Case 4, and on admission there was nothing observed but a tonsillitis. The sister and two younger brothers were transferred to the isolation ward on Dec. 7th, 1895, and were dismissed well on Jan. 1st, 1896, nothing having occurred to warrant the diagnosis of scarlet fever. The third brother was left in a scarlet fever ward, and after twenty-six days developed a typical attack of scarlet fever. Similar cases with a like sequel have been observed by ourselves and are doubtless familiar to anyone who has had charge of scarlet fever wards for some time. We have classified such cases under the heading of tonsillitis, though one might be justified in considering them as cases of aborted scarlet fever. The class of non-specific eruption includes, besides the case of which a synopsis is given above, one case of urticaria and two where an erythema of an indefinite character was present, but where neither the history nor the course of the case led to any reasonable suspicion of scarlet fever.

Of the unclassified cases, one patient was hysterical and the other was sent in from a public institution along with another child who was suffering from scarlet fever. She, however, neither had that disease on admission nor did she contract it.

Glasgow.

ILLUSTRATIVE CASES OF APHASIA.

BY BYROM BRAMWELL, M.D., F.R.C.P. EDIN., F.R.S. EDIN.,

PHYSICIAN TO THE EDINBURGH ROYAL INFIRMARY, LECTURER ON THE PRINCIPLES AND PRACTICE OF MEDICINE, SCHOOL OF MEDICINE, EDINBURGH, ETC.

(Continued from p. 871)

CASE 3.—*Complete word-blindness and marked agraphia; no hemianopsia; partial recovery; second cerebral attack followed by complete word-blindness, marked agraphia, and right sided homonymous lateral hemianopsia; post-mortem examination; large lesion (softening) in the white matter of the left occipital and parietal lobes; the left angular gyrus intact; softenings in the right hemisphere, cerebellum, &c.*—In the following case the patient was suddenly seized with giddiness and mental confusion, but no loss of consciousness. In this state of mental confusion he mistook lead pencils and spectacles for money. This condition was followed by paraphasia, word-blindness and agraphia, and some loss of power in the right hand. When I first saw him, some eight months after the original seizure, he was almost completely word-blind and almost totally unable to write; his memory was defective, but he could understand everything which was said to him and could speak perfectly. From this condition he slowly recovered. Three months afterwards he had a second cerebral attack. The word-blindness and agraphia again became almost complete, and right-sided homonymous hemianopsia was now developed. I am consequently disposed to think that the lesion, which in the first instance had, I supposed, involved the left angular gyrus (visual speech centre), had extended more deeply into the white matter and invaded the optic radiations of Gratiolet. In this localisation I was mistaken, for the post-mortem examination showed that the cortical grey matter (angular gyrus) was unaffected, the lesion being situated in the white matter of the occipital and parietal lobes. During the time which elapsed between the patient's first coming under my notice and his death there were several additional seizures, and the lesions found at the post-mortem examination were multiple. It is difficult in such circumstances to draw accurate conclusions, but the point of interest is that the visual speech centre itself did not seem to be directly involved, while the power of writing was markedly impaired. Other points of interest in the case are:—1. That

the patient, who was unable to read the words "hat," "dog," and "cat" written on the blackboard, did manage to read them (by the aid of muscular sense impressions) when he traced them over with chalk.[1] 2. That the patient could not name the letter "G," but when asked to name it said "George"—his own name. In other words, in this patient, as in some other cases of sensory aphasia which I have met with, the individual letters had in some degree lost their original significance and had (no doubt in consequence of frequent association and repetition) come to be associated with the names of things or with words. The condition is somewhat similar to that which was present in the next case, in which the patient could read words (combinations of letters), but was nevertheless unable to read the individual letters of which those words were composed. 3. That at my last visit the patient (who was not blind it must be remembered) was unable to name objects (a knife, pencil, and key) when they were shown to him—i.e., through the sense of sight—but was able to name them correctly (through the sense of touch and the muscular sense) when they were placed in his hand;[2] in short, a condition of optical aphasia, as French writers term it, was present.

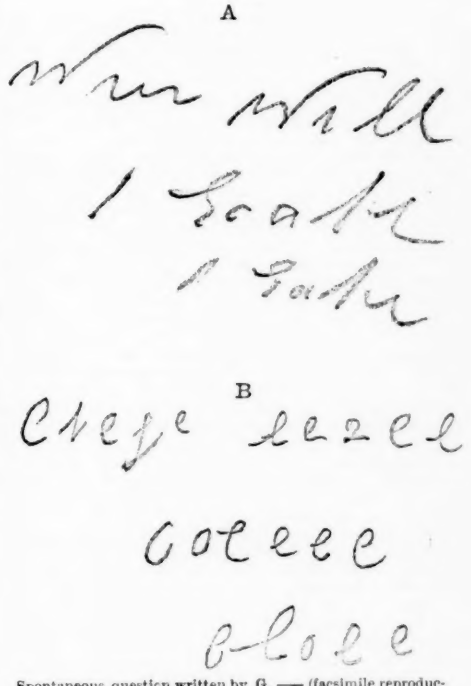
The notes of the case are as follows:—A man, aged fifty-eight years, came to the out-patient department of the Edinburgh Royal Infirmary on Oct. 17th, 1891, complaining of inability to read and write.

Previous history.—His wife, who accompanied him to the hospital, stated that he had a "stroke" on Feb. 16th, 1891, and that he had been unable to read or write since. The late Dr. T. G. Balfour subsequently sent me the following interesting account of the manner in which the attack developed.

"I attended George —— about three years ago for an attack of articular rheumatism, but so far as I can remember there was no cardiac affection. I was again called to see him on Feb. 17th, 1891. For about a year previously he suffered from indigestion and occasionally from headache. For three or four days before the onset of the cerebral attack he had slight attacks of giddiness which, however, passed away in a few minutes. On Feb. 16th he felt pretty well and went out to pay his gas account. He accomplished this satisfactorily, but on the way back to his place of business he was seized with a peculiar sensation (which he could not fully describe), he was somewhat giddy but did not lose consciousness; he walked to his place of business in the Royal Exchange. He was a billiard marker, and when he entered the billiard-room and the intending players came to pay him fourpence each for a game he was aware that it was a sixpence or a shilling (as the case might be) which they had given him, but he could not give them proper change in return. He was so confused that he gave them lead pencils and even his spectacles, and when he gave money he gave more in exchange than was due, and the men returned him what he had given in excess. The men immediately saw that something was wrong, and he was told by his master to go home, which was only a short distance away. He scarcely knows how he reached home, but he knows that he staggered on the road, and his wife says that he was found climbing up the stair to his house on his hands and knees. When he came into his house he exclaimed, 'I am blind,' and fell down at the back of the door and vomited a good deal. After this he felt a little lighter and easier, and went to bed, but with his clothes on. His speech was then much affected; he had difficulty in getting the right word—e.g., he asked his wife to 'shut the gas' instead of 'door,' and so on, always substituting a wrong word for the proper one. I saw him the next day (Feb. 17th) and found him lying in bed, with a look of ordinary inteligence; he noticed me and recognised who I was, but was unable to articulate any word. On my asking if he had pain in his head he put his finger to the top of his forehead and rubbed it; he also indicated that he felt pain over his stomach. Mustard blisters were applied to the nape of the neck and over the stomach; aperient medicine was also administered, and the feet were ordered to be put into a mustard bath twice a day. The only other important symptom besides the aphasia which was present was an inability to grasp with his right hand. The sensation in the right hand was, however, intact. He had no prickling sensations or feeling of numbness in hands or feet or anywhere about his body. Notwithstanding his exclamation about blindness on reaching home, I could not detect any trace of loss of vision. His sight seemed normal, and his hearing also appeared to be natural. He continued for some days in very much the same condition. In the course of a week the power of the right hand returned and he very gradually regained the power of expressing himself, though he still continued to use wrong words. On testing his writing it was found that he could not form a single letter, he could only make marks. In about three weeks his speech was considerably improved, and he was able to sit up in bed and felt stronger. On the evening of March 7th, at midnight, he became excited and seemed very much confused. He called (as well as he could) for his clothes, put them on, and then immediately afterwards took them off, declaring that that was not what he wanted, calling for other portions of clothing, which he treated in like manner. This excitement went on from 12 till 4 A.M. (March 8th), and even at 8 A.M. he was still confused, thinking it was Tuesday when it was Sabbath. He gradually settled down again, and from that time progressed steadily, gaining more power of speech. I may mention that since the cerebral attack he has never suffered from dyspepsia in any form. My last visit was paid to him on March 24th."

Present condition.—His general appearance was that of good health. There was no paralysis. The auditory and motor speech centres and the connecting fibres between these centres seemed to be unaffected. The patient seemed to understand everything that was said to him. His articulation was unaffected. He seemed to be able to say anything that he wished to say. He could repeat everything that he was told to repeat. But his memory was very defective; he often required to be prompted by his wife, but he then answered sharply enough. (If this patient had never learned to read and write there would have been nothing, with the exception of some slight loss of memory, to show at this date that he had sustained any severe cerebral lesion.) The patient was almost completely word-blind. The acuity of vision (after correction with glasses) was normal. There was no hemianopsia. He was unable to read the following word and sentence:—"dog," "Are you a fool?" He recognised some of the individual letters, but not all. He also made mistakes with regard to numbers and figures. He read the numbers 100 and 73 correctly; he said 54 was "45," reversing the figures; he was unable to read 85 and 62. There was no paralysis of the right hand; he could button his clothes and make fine movements with the fingers and thumb of the right hand quite well. The grasping power, as measured by the dynamometer, of the right hand was 95, and of the left 85. He wrote with great difficulty. He was asked to write his name and age. He stated his age wrongly, putting it down as "45" instead of 58. He was told to ask a question in writing. He wrote the following (see Fig. 6);

FIG. 6.



Spontaneous question written by G. —— (facsimile reproduction). A ("When will I get better?") was written on Oct. 17th, 1891. B ("George ——, George, George") was written on Dec. 2nd, 1893.

I could not make out what he meant until I asked him to read it. He then said, "When will I get better?" His wife stated that he was a good speller and writer before the attack. The heart's action was quick, but there was no valvular lesion; the radial and temporal arteries were atheromatous. The urine was normal; it contained no albumin. A tonic was prescribed.

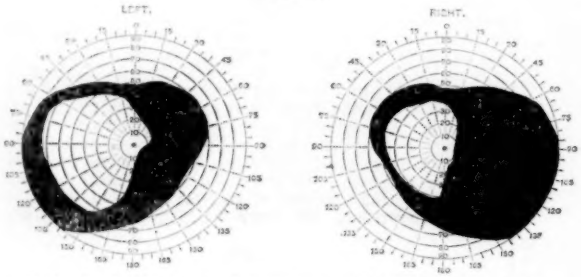
Subsequent progress of the case.—On Oct. 24th the patient

[1] Déjerine and Mirallié state that this is only possible when the lesion is outside the "zone of language"; in other words, in those cases of word-blindness in which the patient can write spontaneously, in which the lesion involves the tracts proceeding to the visual speech-centre and not the visual speech-centre itself.

In other cases the patient is able to name the object (which he cannot name by the sense of sight) by the sense of smell or taste.

was again seen at the infirmary. He read better on that day than at the previous visit, and was less nervous. His wife said that he was distinctly better in other respects. He read the words "cat," "man," and his own name correctly. He also read correctly every number which he was asked to read. On Jan. 23rd, 1893, he was seen again at the infirmary. He was decidedly worse. He had had another cerebral attack a month previously. He complained of pain in the head, and vomited. Since that attack he had been much more confused, had been speaking much worse, and his reading and writing, which had improved somewhat before this last attack, had been much worse. There was very marked right-sided homonymous lateral hemianopsia, the fixing point being spared, with decided constriction of the peripheral portions of the fields (see Fig. 7). He was unable to read the words "dog" and "hat," but read the number 100 correctly. He said 49 was "29." He read the letters "a" and "h" correctly, but said "c" was "s." When asked to write "cat" he wrote "sot." He wrote "dod" for "God," and the letter "a" for "o." He wrote his name, but very indistinctly. When asked to write 50 he wrote first "too"; on a second attempt, "so"; on a third, "20"; and on a fourth, "50." When asked to write the word "Edinburgh" he wrote a scrawl which could not be read. On Feb. 12th in the sentence "The year-book of treatment for 1892" he read "The," "book," and "1892" correctly. The number 1892 was read without any hesitation as "one thousand eight hundred and ninety-two." He could not make out the word "year." "Of," he said, was "to," and "for" was "from." He said "treatment" was "arithmetic." When told this was wrong he made a second attempt, and said "remoted"; on a third attempt he said it was "touriments." When asked to read the individual letters composing the word "treatment," he read "t, o, c, n, o, r," but after going over the letters a second time he managed to read some of them. He was asked to write the following words and figures: "Edinburgh" (he took much time to do this), "Monday," "hat," "dog," "100," and "41." The result in each case was very unsatisfactory. On Feb. 27th the patient read a little better. He said: "I can see the letters better and can work it better in the mind too." He was unable to read the words "hat," dog," and "cat." When his hand was helped to trace these words with chalk on the blackboard he managed to read them, though he could not do so before. (This interesting fact was demonstrated before the students). He read his own name sharply, but was unable to read "Edinburgh," saying it was "g, o." He read the number 60 after long consideration, and read the number 9 all right; 57 he said was "79"; 34 was "39"; but he read 79 correctly. He wrote down correctly the following numbers to dictation: 101, 61, and 52. He wrote "1011" for 1000, "11" for 7, "10" for 9. On Dec. 2nd, 1893, the patient's reading and writing were decidedly worse. He read the letter "d" correctly, but this was almost the only letter which he could make out. He said "o" was *nothing*, and did not recognise the letter "o" even when it was named to him. He could not name the letter "G." He said it was "George." He could not read the words "dog" and "cat"—could not read them even when his hand was made to trace them on paper. He was unable to write his own name, but made an attempt. On Nov. 22nd, 1894, the patient was seen at his own house. He had not been able to come to the infirmary for several months. Soon after I last saw him he had had another comatose attack and was insensible for five or six hours. Since recovering from this his mental condition had been much worse. When I went into the room he looked quite bright, said he knew me, but had forgotten my name. At the end of the interview he said "Dr. Bramley." When asked where I had seen him before he said, "At the infirmary." His mental condition was evidently very much impaired and his gait was feeble. He had difficulty in coördinating the movements of the right hand. He was unable to take hold of a pencil held in front of him with the right hand, but could readily catch it with the left. The inability was not so much a want of power as a want of coördination. The right leg was very weak; there was distinct loss of power in the right leg as well as want of coördination. His hearing was unimpaired, and he seemed to understand almost everything that was said to him. He answered short questions correctly, and seemed to have no difficulty in articulation. He repeated short sentences quite correctly. He was totally unable either to read or write. He was unable to name a knife, pencil, and key when they were held up before him, but when he took them in his hand, and after he had felt them, he told me what they were—i.e., named them correctly. I heard nothing more of him for some months. His wife then came to the infirmary to tell me that he had died in the asylum at Morningside. It seems that a few days after my last visit he had had another and more severe cerebral attack. After this he became so much worse that it was decided to remove him to Morningside Asylum. Dr. Bruce kindly sent me the following account of the patient's condition at the time of his admission to the asylum, and of the lesions which were found in the brain after death.

FIG. 7.



Fields of vision in the case of G. —— on Jan. 23rd, 1892, showing right-sided homonymous lateral hemianopsia with considerable constriction of the sound (left) halves. The fixing point is spared.

Condition on admission to the asylum.—"George ——, aged sixty-two years, was admitted on Dec. 6th, 1894. Mentally he was unable to speak in reply to questions and did not appear to understand what was said to him. Physically he presented symptoms of gross brain disease. All the muscles of the body were more or less wasted, probably from disuse. The motor power in the arms was equal and of average strength. The left leg was much weaker than the right; the patient was unable to stand, always falling backward and to the left. The knee-jerks were both greatly exaggerated. The pupils were equal and reacted slowly to light. Swallowing was much affected. From the date of admission to April 17th he lay like a log, passing urine and fæces as he lay. He died on April 17th, 1895, apparently from exhaustion. I noticed that during the last week of his life he was at times quite blind or appeared to be so, but this condition was not permanent. I give these details as the case was under my care. The post-mortem examination was an interesting one, as the lesion appeared to be confined to the white matter, the grey matter externally being quite firm and apparently healthy. I enclose copy of the post-mortem notes."

Notes of the post-mortem examination.—"The necropsy was made on April 19th, 1895. The head only was examined. The brain weighed 46¾ oz. The scalp was slightly adherent. The skull cap was somewhat thickened and greatly condensed, the diploe being absent. The dura mater was firmly adherent to the calvarium and slightly adherent by delicate fibrous bands to the pia mater at the tip of both temporo-sphenoidal lobes. The pia mater and arachnoid presented considerable general milkiness over the upper surface and sides of the brain. There was a small osteoid formation in the arachnoid near the surface over the left Sylvian fissure. There were some delicate fibrous adhesions to the dura mater over the tip of each temporo-sphenoidal lobe. Almost all the arteries were very atheromatous. In the cerebrum there was a large depression extending over the whole of the posterior half of the upper surface of the left hemisphere. There was some general atrophy of the cerebral convolutions. The external configuration of the brain as a whole, as regards complexity of convolutions, shape, &c., presented no marked change. The grey matter in the first section made above the lateral ventricles was slightly pigmented, of a faint yellow colour, and somewhat

soft; it was perhaps somewhat atrophied and its layers perhaps blended. Scattered through the white matter at this level were numerous, somewhat soft, slightly yellow nodules with ill-defined outlines, mostly about the size of a pin's head, though some were somewhat larger, others smaller. There was a large area of old softening in the left hemisphere; it involved the white matter only of the occipital lobe and the posterior half of the parietal lobe. It was situated above the level of the ventricle, the roof of the posterior horn of which formed its floor. The surrounding grey cortex was practically intact, the softened white matter, however, extending almost close up to it. The softened tissue had a gelatinous appearance and was of a bright yellowish-brown colour. In the centre there was an irregular cavity containing fluid. There was a similar softening containing fluid in the external capsule on the right side. Scattered throughout the brain there were some small rounded deep red points which were probably miliary aneurysms. In the right hemisphere, in the corresponding position to the large softening described above, there was a diffuse area of softened tissue which, however, presented the normal colour. There was also much general softening of the ventricular walls, especially posteriorly. In the grey cortex of the right hemisphere in the parietal and occipital lobes some small areas of atrophic softening were found. The lateral ventricles were much dilated; the internal lining membrane of the ventricles was not thickened, and there were no granulations. In the white matter of the right lobe of the cerebellum there was a softening, similar to that in the external capsule, about the size of a hazel nut. In the convolutions of the left lobe on its superior aspect there was an area about the size of a horse bean, which, while preserving the normal markings, was firmer and darker than the surrounding tissue. On cutting across the pituitary body fluid spouted out of the ventricles. The medulla oblongata appeared to be normal."

Corrigendum.—Case 2, page 868, eighteenth line from the foot, instead of "was an example of cortical," read "was an example of subcortical."

(To be continued.)

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

DIPHTHERIA OF THE UMBILICUS.

By BERNARD PITTS, F.R.C.S. ENG.,
SURGEON TO THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET, W.C.

ON Feb. 20th a child, aged fourteen days, was admitted into the Hospital for Sick Children, Great Ormond-street, under my care for inflammation of the umbilicus. The cord had separated on the eighth day and the resulting wound had continued to discharge extremely offensive pus. When seen on the 20th there was a brawny-red indurated area round the umbilicus of about the size of a five-shilling piece, from which the epidermis had peeled. The umbilicus itself was the seat of a dirty coloured wash-leather slough, discharging extremely offensive pus from an opening into which a probe could be passed for about an inch. The child's condition was otherwise good, the only other point of interest being an occasional inspiratory crow and with this some slight cyanosis. No definite history was obtained till the next day, when it was ascertained that a brother of the patient had been removed to a fever hospital for diphtheria during the previous week and had died on the same morning as that on which the history was taken (Feb. 21st), and that the mother was then an inmate of University College Hospital, where, on inquiry, it was found that she was suffering from diphtheria. A culture was then made of the pus escaping from the umbilicus and examined on the 22nd, when the bacillus of diphtheria was isolated. In the meanwhile the child, who had suffered from several attacks of vomiting, had become considerably weaker and died on the evening of the 22nd. After death nothing abnormal was found in the larynx or pharynx, nor was the condition at the umbilicus found to extend to any of the deeper structures.

Harley-street, W.

EXTENSIVE SUBCUTANEOUS EMPHYSEMA COMPLICATING DIPHTHERIA.

By J. SCHUTZ SHARMAN, M.R.C.S. ENG., L.R.C.P. LOND.,
AND
D. D'ESTERRE, M.D., B.S. DURH., M.R.C.S. ENG., L.R.C.P. LOND.

WE report the following case believing it to be both rare and interesting.

A boy, aged six years, was on Feb. 17th, 1897, taken ill with a sore throat and slight difficulty in breathing. The following day he had an attack of epistaxis, and on examining the throat the tonsils were observed to be the seat of patches of exudation. There was a slight rise in temperature and pulse-rate, the dyspnœa being now characterised by noisy inspiration, the patient in general condition getting worse. The glands under the jaw were slightly enlarged, and the urine contained a considerable amount of albumin. Some of the exudation obtained from the tonsils was sent to the School of Preventive Medicine for bacteriological examination and the diphtheria bacillus was isolated. On Feb. 22nd subcutaneous emphysema appeared at the root of the neck, giving rise to the characteristic fine crackling feeling, and forming tumours above the sternal end of each clavicle. During the next day the emphysema spread upwards to the submaxillary regions and downwards over the chest, and in a few days air could be felt under the skin all over the trunk, but more marked on the right of the middle line. The right half of the scrotum was much inflated with air and was quite transparent. Subsequently the emphysema reached as far as the zygomatic regions above, while below the affected area was limited by Poupart's ligaments and the scrotum in front and by the margins of the coccyx and sacrum and the iliac crests. The child's temperature rose to 100° F., the pulse to 144 per minute, the dyspnœa became more urgent, and there was moderate cyanosis of the face. Coughing occurred frequently with semi-purulent expectoration, and rhonchi were heard scattered throughout the lungs. Shortly before death the thermometer registered 101·6°, the pulse reached 180 per minute, and the urine contained one-third albumin. The treatment consisted mainly of stimulants, iron, antiseptics, and the use of the steam kettle and tent. The dyspnœa did not seem at any time sufficiently urgent to necessitate tracheotomy. A post-mortem examination limited to the neck was all that could be obtained, and this was just sufficient to eliminate the possibility of ulceration or perforation of the trachea as a cause of the emphysema. The trachea and larynx were found to be lined with false membrane.

Remarks.—We regret that owing to the difficulty in obtaining permission to perform a complete necropsy the cause of the emphysema could not be ascertained. Such a condition of almost universal emphysema complicating diphtheria is seldom met with, we think, though we are aware of a limited emphysema occurring in the neck after tracheotomy and in some cases of pulmonary disease where it has been traced to the rupture of an air vesicle. We think in this case the probability is that the emphysema occurred through the rupture of an air vesicle and the escape of air into the adjacent tissue of the mediastinum and thence to the neck and trunk.

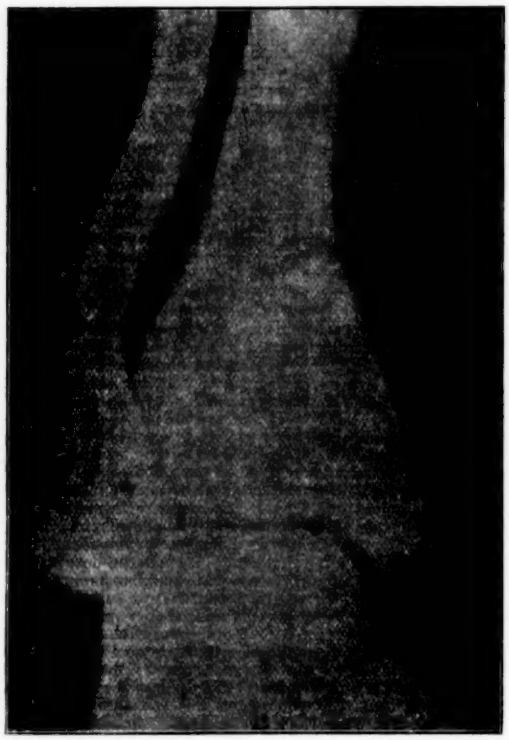
Avenue-gate, Norwood, S.E.

EXPERIMENTAL DISTORTION.

By W. S. HEDLEY, M.D. EDIN., M.R.C.S. ENG.

THOSE who use the x ray paper or other flexible sensitised surface in radiography for surgical purposes must beware of producing artificial deformities. Shadows must be thrown upon a flat surface, not upon a curving one. The latter kind of distortion is easily realised by anyone who watches his own shadow lengthening and shortening as he walks across the "ridge and furrow." It is obvious that the sensitised

paper should not be adapted to the contours of the body. This would make the radiograph hopelessly misleading to the surgeon who works by it. It is true that the latter, in "locating" by means of a radiograph a foreign substance in the thicker parts of the body, does so by inference, and this is difficult enough; but inference carried to the extent



Distorted image of a normal leg.

in question would be simply bewildering. Imagine the surgeon confronted with the above example of experimental distortion produced by the simple but very misleading process of adapting a sensitised surface to half the circumference of a normal leg!

Mansfield-street, W.

PERMISSIVE VERSUS COMPULSORY PURCHASE.—For some time the Southampton Corporation has been promoting a scheme for the purchase of the property of the South Hants Waterworks Company. The corporation already possesses works supplying the old borough, but wished to acquire this company's business, apparently with a view to lessening the rate in portions which have recently been added to the borough and making one uniform charge for water for the whole area. The Bill, however, has been wrecked in Committee of the House of Lords. The ratepayers were given to understand that if, after the promotion of the Bill, satisfactory terms could not be arranged with the vendor company, the corporation would be at liberty to withdraw. This line has been taken all along, and special care was taken to insert a clause in the Bill giving the corporation power to withdraw in case their overtures were not accepted. It was intended by the authorities immediately after the Bill had passed to treat with the company, and if without favourable result, they would not give the statutory notice to purchase which, having been given, would have bound them to buy out the company. It was apparently the difference between permissive and *bonâ-fide* compulsory purchase which led the House of Lords to throw out the Bill.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

CHARING-CROSS HOSPITAL.

(1) CASE OF MULTIPLE OSTEOMATA UNDERGOING SARCOMATOUS CHANGES; AND (2) CASE OF FRACTURE OF THE ANTERIOR FOSSA FOLLOWED BY HEMIANOPSIA.

(Under the care of Mr. JOHN H. MORGAN.)

THE first case illustrates the change which sometimes takes place in a tumour of the bone which is of innocent nature at its commencement. It also shows the extremely painful progress of such a case when the surgeon considers that other complications forbid removal of the changed growth. The relief which would have been afforded to the sufferer by an amputation, could the surgeon have seen his way to its performance, and had the patient consented to it, would evidently have been very great. The second case is an example of a rare complication after fracture of the base in the anterior fossa. Many cases have been published showing the results of injury to the anterior part of the skull in the production of loss of vision, usually in the eye on the same side. There has been, however, far too great a tendency to ascribe the optic atrophy and blindness which follow such an injury to the extension of a fracture through the optic foramen and compression of the nerve by fragments of bone. Fracture through the optic foramen has been met with by Dr. Berlin[1] and others, but it is extremely rare. The degeneration of nerve is probably far more commonly the result of hæmorrhage or inflammation, or both combined, than of fracture and actual compression by bone. In fifty-four cases of fracture of the base[2] in no single instance was fracture revealed in the neighbourhood of the optic foramen; but in eight, where the fracture of the base was severe, blood was found extravasated in the sheaths of the nerves, and in one (at the end of eight days) there was slight neuritis. In one case also, where fracture of the optic foramen had been suspected when first under observation, examination of the case after death three years later showed that there had been considerable inflammation about the optic nerves affected, but no fracture near the foramen. We do not know of any specimen showing the fracture in our museums.

CASE 1. *Multiple osteomata undergoing sarcomatous changes.*—A man, aged fifty-five years, sought admission to Charing-cross Hospital in October, 1896, on account of pains in the right leg and thigh. He had observed varicosity of the veins of both legs for over ten years, but had never been inconvenienced by this till June, 1895, when an ulcer appeared on the lower half of the right leg, which lasted until the following September. Eczema followed, for which he was treated at St. Bartholomew's Hospital and which continued until November. The pains of which he complained then commenced. They were shooting in character, and started from the dorsum of the great toe and passed up the anterior and outer side of the limb as far as the region of the anterior superior spine. On admission the pigmented cicatrix of an old ulcer measuring about four inches by four and a half inches was observed on the antero-external and internal surfaces of the leg, and several irregularly tortuous superficial veins. In the region of Scarpa's triangle was a fairly firm ovoid swelling, slightly painful, not fluctuating or attached to the skin, which was not reddened. This gave no impulse on coughing, and was said to have first appeared about ten days previously to his admission. The patient stated that as long as he could remember there had existed several large bony tumours in each leg, which had never given him pain or inconvenience. These were situated (1) on the antero-external surface of the right femur; (2) in a similar position on the left femur;

[1] Transactions of the International Medical Congress, vol. iii., p. 115.
[2] Battle: Lectures on Injuries to the Head, THE LANCET, July 12th, 1890, p. 63.

(3) on the internal aspect of the head of the right tibia; and (4) on the posterior surface of the middle of the left tibia, causing a large prominence in the calf. All these were firm, hard, immoveable masses, possessing no thrill, not attached to the skin, and with no eggshell crackling. The patient left the hospital at his own request, but was re-admitted on Nov. 15th, 1896, on account of increasing pain in the thigh and leg. On examining the patient in bed it was found that the veins which had a few days previously been prominent and varicose in the lower part of the legs, particularly the right, were no longer so, and the skin which had been slightly œdematous was normal, with the exception of the cicatrix above mentioned. A large irregular hard mass projected in the upper third of the tibial and fibular region, which was not attached to the skin but firmly fixed to the deeper structures and apparently connected with both bones. Over this region the skin was œdematous, and in the centre there was some area of fluctuation. Pain was constant and was aggravated by handling. The knee-joint appeared to be unaffected, but movement was limited on account of the bony swelling. The swelling in Scarpa's triangle did not appear to have changed. The lower part of the right thigh was two and a half inches larger in circumference than the left, and the upper part of the right leg measured two and three-quarter inches more than its fellow. The temperature varied between 98° and 101° F., and there was excessive pain in the swelling at the upper part of the right leg, aggravated at night. On Dec. 4th an incision was made over the swelling about three inches below the patella, and on introducing a finger a large bony cavity was found filled with soft granular débris. A second incision two inches behind the former and immediately in front of the fibula entered a similar bony capsule, from which masses of broken-down bone and large quantities of very soft gelatinous material, having the appearance of the degenerated contents of an enchondroma, were scooped out. The cavity was well washed out with perchloride of mercury lotion, a drainage tube was inserted, and a dressing of cyanide gauze was applied. The pain did not diminish after the operation and the temperature continued to vary as before, but it was soon apparent that the growth was spreading. The microscopical examination of the material removed showed it to consist of mixed spindle and round cells in a fibrillar matrix. The symptoms continued the same until Dec. 21st, when it was noted that the wounds were completely blocked with large fungating masses which confined the discharges, consisting of pus and altered blood-clots. These, when evacuated, gave off a very foul odour, which was diminished by the free use of Sanitas and iodoform. The growth spread rapidly downwards upon the fibular aspect, and the stench from the discharges was most offensive and could not be effectually lessened by disinfectants and charcoal poultices. The pain was excessive and emaciation advanced rapidly. On Dec. 29th it appeared that the growth had invaded the kneejoint, as it became terribly swollen and large purple veins stood out prominently in the superjacent skin. Huge bullæ formed on the peroneal aspect of the skin, which in some places commenced to slough, and the same condition was seen in the great toe. The pulsation in the posterior tibial could not be detected, and œdema was spreading upwards into the thigh. The situation of the pain did not alter, but it became more excessive. The patient grew rapidly weaker, but lingered until Jan. 3rd, 1897, when he died. Unfortunately, permission for a necropsy was refused.

CASE 2. *Fracture of the anterior fossa followed by hemianopsia.*—A man, aged twenty-six years, was admitted on Oct. 22nd, 1896, after falling from a ladder whilst cleaning windows. He was found to be suffering from severe concussion. The eyes were closed, the breathing was rapid, the respirations were shallow, the pulse was 120, feeble and frequent. On recovering from the acute shock he vomited about one pint or more of blood. He was then able to give his name and address and state where the accident occurred, but he remembered nothing about it. On examination there was great ecchymosis and swelling of the eyelids on both sides; there was no bleeding from the ears, but there was coagulated blood in the nostrils and a transverse fracture of the left patella. Two days later it became possible to examine the eye, and it was then seen that a subconjunctival hæmorrhage occupied the whole of the temporal side of the right globe, passing to the back. Both pupils were equal and reacted to light. On Oct. 31st the patient showed all the symptoms of cerebral irritation. There were marked subsultus, some pain in the right eye, and incontinence of urine. He wandered slightly, with intervals of consciousness, and the fingers constantly plucked at the bedclothes. The temperature varied between 99·4 and 101·6° F. On Nov. 3rd the temperature rose to 103·2°; he was very drowsy, but answered questions when roused. The tongue was very loaded and the breath extremely foul. The bowels were opened by purgatives and enemata. On the 6th the temperature was still high (101·6°), the tongue was still coated, and the breath very foul. He was very drowsy, but answered questions quite rationally. When dozing off his breathing became irregular and stertorous. There was some twitching of the muscles of the right angle of the mouth, but no movement of the left; the left nasal fold was less marked than the right, and he could not close his left eye. Subconjuctival hæmorrhage was still present, the pupils were equal and reacted to light, and there was slight conjugate deviation to the left side. The tongue was brown and dry, there were sordes on the teeth, and the breath was excessively offensive. The pulse was very irregular—one minute numbering 70 and the next 100, full and fairly strong. On the 9th the patient was better, the signs of facial paralysis had almost passed away, but when asleep there was still some slight twitching of the facial muscles of the right side. The deviation of the eyes had passed off. On the following day, the 10th, the temperature rose to 101·8° and the pulse to 120, small, weak, and irregular; the breath was still extremely foul, and the respirations were quiet. During the next four days the patient continued in much the same condition, wandering slightly in his talk, but answering questions. All facial paralysis had disappeared, but his speech was indistinct and guttural. On the 17th the temperature suddenly rose to 102·4° and the pulse to 140, small and weak. Swelling and œdema appeared over both eyelids and spread down to the cheeks, and a limited area of erysipelas attacked these parts, which lasted for eighteen days, during which time he was isolated. On returning to the ward when convalescent from this attack it was observed that a small fluctuating swelling existed over the orbital arch and just to the right of the metopic suture. This swelling was bounded by hard, elevated edges of bone, and in the centre was a fluctuating area, emphysematous, but showing slight pulsation synchronous with that of the temporal artery. The tongue remained very loaded and the breath continued to be very foul. At times the urine and fæces were passed unconsciously. On ophthalmoscopic examination of the eyes on Dec. 8th the discs were found to be very white, with very sharply defined edges, but no white streaks were noticed around the vessels, which exhibited no pulsation. The emphysematous crackling in the small swelling lasted from the 8th to the 14th, when it disappeared, leaving a small hard bony elevation, and there also appeared another small boss of callus under the inner third of the right orbital arch. On the 14th further examination of the fundus revealed that there were loss of vision in both temporal fields, paralysis of the nasal halves of both retinæ, and temporal hemianopsia. Dr. Mott, who kindly examined the patient, observed that he had seen the same condition in a case of acromegaly with enlargement of the pituitary body. This observation was of extreme interest when the probable line of fracture came to be considered. Dr. Mott found that the patient could not read even three large letters in succession easily and that he had considerable loss of memory. He found the discs very white and the vessels normal in size but rather curved, but he could observe no retinal changes. Very probably there was early optic atrophy. Dr. Mott added: "No doubt the morbid process is situated at the chiasma, damaging chiefly its central portion and affecting thus the decussating fibres from the nasal half of each retina. I should think, however, it has involved other fibres from the central portion as well." These conditions remained the same until Jan. 22nd, 1897, when the patient was sent to the Limpsfield Convalescent Home, his general health having much improved.

Remarks by Mr. MORGAN.—The history of Case 1 offers a fair presumption as to its nature. The bony tumours were without doubt of congenital origin, and the rapid sarcomatous change in that on the right tibia is certainly an unusual pathological development. The question of amputation of the thigh was considered, and would have been proposed but for the large mass of growth in the upper part of the groin, which, although bearing some resemblance to an omental hernia, was almost certainly a mass of secondary growths in the glands, which became affected before the

evidence of malignancy became apparent in the original growth. The line of the fracture in Case 2 can only be indefinitely surmised by the course of subsequent events. That the base of the skull was fractured in the anterior fossa was indicated by the ecchymosis of the eyelids with the subconjunctival hæmorrhage; and that there was rupture of the mucous membrane, either in the nose or in the upper part of the pharynx, was proved by the large amount of blood which was vomited soon after the patient's admission. It was probably through this lesion that the septic material spread which gave rise to the subsequent erysipelas, and the inflammatory products may have been the causes of morbid effects upon the chiasma and even the pituitary body. The emphysema noticed in the swelling over the frontal sinus was probably the result of decomposition, since the patient was unable by any effort to force air into this swelling. Subsequent inquiry elicited the fact that the patient had as a child been subject to fits, but had not suffered from any attacks since early infancy; his memory had never been good, and on account of the fits he had never learned to read or write. His eyesight seems to have been defective previously to the accident, but it has been very much worse since, and his memory is now so feeble that he cannot remember a name for two minutes together. The patient has been placed under the observation of Dr. Mott, who will watch and report any further developments.

HEREFORD GENERAL INFIRMARY.

A CASE OF PARTIAL RUPTURE OF THE SPINAL CORD WITHOUT FRACTURE OF THE SPINE; NECROPSY.

(Under the care of Mr. R. THOMASON.)

THIS case is a most unusual one and may prove of considerable importance from a medico-legal point of view, as it establishes the possibility of rupture of the spinal cord without any fracture of the bones containing it. The points of chief interest are indicated in the remarks appended to the case. For the notes of the case we are indebted to Mr. A. M. Watts, house surgeon.

A man, aged sixty-five years, while driving from Hereford to his home on Jan. 2nd, 1897, fell out of his cart. He was partly under the influence of drink at the time, but picked himself up and walked as far as his residence, a distance of a mile, put his horse away, and then sat down in a chair by the fire. Some time afterwards (three hours from the time of the accident) he noticed that he had no power in his right hand, then that his left hand was paralysed, and then that he could not move his legs; the paralysis came on so rapidly that it seemed to affect all his limbs almost simultaneously. On arriving home his neck felt a little stiff, but he had no pain in it. He had always been a healthy man and was not in the habit of drinking to excess. The patient was admitted to the infirmary on Jan. 4th. He lay in bed on his back and his respiration was entirely diaphragmatic. He answered questions rationally and had no cerebral symptoms. Movement of his neck caused pain. There was no bruising of the skin and no irregularity of the spinous processes. When he was lying still he had no pain in his neck or any pain in the course of the nerves. He could raise his arms from his sides to a horizontal position and could move them inwards across his chest; he could flex but could not extend his forearms; he had no movements of the hands or fingers. The knee-jerks and the plantar reflexes were absent. There was loss of all sensation of the trunk and the lower limbs below the level of the third costal cartilage; no hyperæsthesia was present above that level. There was also loss of sensation on the anterior and posterior surfaces of the forearms on the inner halves, on the whole of the dorsum of the hands, and on the inner part of the palms and on the palmar aspects of the little fingers. The patient had retention of urine and constipation. The chest was normal. The pulse was full and regular, being 56, and the temperature was sub-normal. The urine was acid, of specific gravity 1025, and contained a trace of albumin. No alteration in the amount of paralysis or anæsthesia was noticed and the patient's mind remained clear until his death, which was due to œdema of the lungs, and took place twelve days after the accident. The reflexes remained absent and the pulse slow. From the absence of any signs of fracture of the spine, and also from the absence of pain in the course of the nerves and hyperæsthesia, the injury was thought to be probably limited to the spinal cord. As the patient had absolute loss of the reflexes up to the time of his death a total transverse lesion was diagnosed, the seat of it being just between the origin of the sixth and seventh cervical nerves as the musculo-cutaneous and external anterior thoracic nerves escaped, while the musculo-spirals, medians (with the exception of their cutaneous branches) and ulnars were paralysed. The circumflex nerves were not paralysed, and although they come off with the musculo-spirals from the posterior cord of the brachial plexus, their fibres seem to be derived and also the cutaneous fibres of the musculo-spirals and medians from the sixth cervical nerves. As regards treatment, there was little to be done except to keep the patient's spinal column at rest, to prevent bed-sores, and to relieve the retention of urine by the passage of a soft catheter.

Necropsy.—The spine was exposed by a vertical incision over the spinous processes. No irregularity or signs of fracture could be detected, so the spinal canal was opened by removing the spinous processes and laminæ, but no hæmorrhage was found in it. The spinal dura mater was seen to be torn transversely across in its left half, so it was, together with the spinal cord, removed. On dividing the dura mater longitudinally on its posterior aspect the cord was exposed and the left half found to be torn across in the line of the wound in the dura mater, which extended round to the middle line anteriorly. An antero-posterior longitudinal section was then made of the spinal cord; at the seat of the rupture, and for a distance of half an inch above it, the cord was found to be very soft in consistence and greyish in colour, the limits of the grey area above being distinctly defined by a somewhat irregular transverse line; this condition of the cord apparently existed through its whole transverse section. On comparing the cord with the bodies of the vertebræ on its removal the rupture was seen to be exactly opposite the articulation between the sixth and seventh cervical vertebræ. A little movement could be obtained in this articulation, but the posterior common ligament was intact.

Remarks by Mr. WATTS.—As a rupture of the spinal cord is a somewhat uncommon accident, I think that it is worth while putting this case on record, especially as there was apparently no fracture of the spine, and although a little mobility between the sixth and seventh cervical vertebræ was found the posterior common ligament was not ruptured. The case is also interesting for the following reasons:—(1) After the accident the patient walked a mile and the paralysis did not come on until three hours afterwards; (2) because the paralysis on the one side of the body was exactly similar to that on the other; and (3) although there was absolute loss of reflexes, still the cord was not entirely divided. My thanks are due to Mr. Thomason, under whose care the patient was admitted, for permission to publish the notes.

Medical Societies.

CLINICAL SOCIETY OF LONDON.

Epidemic of Infantile Paralysis.—Gastrostomy for Swallowed Œsophageal Tube.—Removal of Cerebral Tumour.—Extravasation of Urine.

A MEETING of this society was held on March 26th, the President, Dr. BUZZARD, being in the chair.

Dr. PASTEUR read a paper on an Epidemic of Infantile Paralysis occurring among children of the same family. The epidemic was limited to this household. Every one of the seven children in the family was attacked in rapid succession within the space of three weeks with fever of moderate severity, accompanied by severe headache. In three of the children—aged eleven, nine, and five years respectively—paralytic symptoms supervened within seven days of the commencement of illness. The type of paralysis varied in the different cases. In one there was flaccid paralysis of the left arm; in another right hemiplegia with marked and persistent muscular rigidity of the arm and the leg, with more transient paralysis of the face and soft palate on the same side; whilst in the third case there was paralysis with rigidity limited to the left lower limb. In two more the primary fever

was followed by tremors lasting a few days, whilst in the remaining two the primary fever was not followed by any nervous disturbance. As regards the cause of the outbreak, it was possible to exclude the acute exanthemata, diphtheria and influenza. The points of resemblance to infantile paralysis were held to justify the diagnosis in spite of the remarkable characters of the paralysis. The cases prove that a poison giving rise in one instance to a paralysis indistinguishable from the acute atrophic paralysis of childhood is also able to determine lesions in other parts of the nervous system. They further strongly confirm the growing impression that infantile paralysis is an acute infective disease.—Dr. ORMEROD remarked on the difficulty of reconciling the symptoms with simple anterior polio-myelitis. It was true that the account of the febrile stage did not correspond with that usually seen in epidemic cerebro-spinal meningitis, but it was worth considering whether something of this nature would not account for the associated rigidity and pain left in the third case brought forward by Dr. Pasteur.—Dr. BEEVOR said that he had seen the cases when they were in hospital, and, though the first was clearly one of anterior polio-myelitis, the second was undoubtedly of cerebral type, and the amount and duration of the rigidity were in favour of the meningitis theory, but there was no pain. Except for the amount of rigidity the third case was like an ordinary one of infantile paralysis.—Dr. CAYLEY said that the cases were clearly instances of an acute specific fever. The term "infantile paralysis" was not always appropriate, and these cases showed that anterior polio-myelitis was inadequate, since there might be other lesions besides those in the anterior horns. If a satisfactory name could be devised it would greatly stimulate clinical work on the subject.—The PRESIDENT said that, so far as he knew, this was the first time that the infective character of infantile paralysis had been brought before the society. The cases showed that the toxic effects might not be confined to the spinal grey matter, but might affect the intracranial centres. He thought that the rigidity in these cases might possibly be due to the poison affecting the lateral columns. In his inaugural address last year he had drawn attention to the remarkable epidemics of infantile paralysis recorded by Medin, Bergenholtz, Colmer, and Cordier. He had himself seen a little boy affected with infantile paralysis whose sister a day or two previously to his attack had sickened with precisely similar symptoms, which, however, in her case cleared off without leaving her paralysed. Possibly if the disease could be recognised in the pre-paralytic stage it might be possible to cut the attack short by some mode of treatment allied to the antitoxin treatment.

Mr. C. B. LOCKWOOD read notes of a case of Malignant Stricture of the Œsophagus treated with Symonds's Tubes; Safety String Swallowed; Gastrostomy. The patient was a man, aged sixty-five years, who, whilst wearing a Symonds's tube for a malignant ulcer of the œsophagus, swallowed the string. Every effort to extract the tube failed. Inasmuch as only liquids could be swallowed in small quantities, and he was rapidly becoming thinner and weaker, the question of œsophagotomy or gastrostomy was debated. It was determined not to perform œsophagotomy because it was uncertain whether the tube was still in the œsophagus, and also whether the stricture was still safely permeable. Gastrostomy was performed and gave much relief. Three weeks afterwards the malignant growth perforated the trachea, and the man died from broncho-pneumonia. Afterwards the tube was found in the stomach, but had probably only escaped into it a few days before death.—Mr. CLUTTON thought that Symonds's tubes were a great advance on previous instruments at the time they were invented; but at the present day, when the mortality of gastrostomy had been so greatly reduced, he thought that it was the most useful form of treatment for malignant stricture of the œsophagus. The presence of a tube was apt to increase the amount of ulceration, and many patients could not tolerate its presence.—Mr. MAKINS asked if any attempt had been made to push the tube down by inserting a new and therefore stiffer tube. He could not speak with the same amount of enthusiasm with regard to gastrostomy in these cases as Mr. Clutton had done.—Mr. LOCKWOOD, in reply, said that no attempt had been made to push the tube down because it was such a large one. Patients were not always comfortable after gastrostomy, owing to leakage of gastric juice or to pain, one patient having so much discomfort that she insisted on the operation wound being allowed to close.

Dr. WASHBOURN and Mr. ARBUTHNOT LANE described a case of Tumour of the Brain which had been Successfully Removed. The patient, a woman, aged forty-six years, was seized with a fit on May 4th, 1896. It commenced as a convulsive twitching of the thumb of the right hand. This extended to the forearm and to the upper arm, the elbow being forcibly flexed. The leg on the same side was then similarly affected, the knee being bent. She did not lose consciousness. After the fit she noticed that her right arm and leg were weak and that the right side of her lips and tongue were numb. During the interval that preceded her admission into Guy's Hospital on Aug. 27th, 1896, she had a similar fit about every fortnight, the date of the fit corresponding to her menstrual periods, which were very frequent. She gave no history of headache or of vomiting. On admission her right side was found to be distinctly weaker than the left. During the time she was under observation she had fits similar in character to those already described. As she did not improve under anti-syphilitic remedies it was decided to explore the motor area of the brain on the left side. On Sept. 18th a large area of bone was removed and the dura mater, which was healthy, exposed. On the following day she had two fits. On the 21st the dura mater and arachnoid were divided, when a tumour was exposed. It grew from the pia mater and deeply indented the brain immediately in front of the upper limit of the fissure of Rolando. The tumour was sharply defined and shelled out readily. Though not invading the brain substance, a minute portion of grey matter was found adhering to its under surface. The longest diameter of the growth was from before backwards, where it measured about two inches, while its transverse measurement was about one and a half inches. Its depth appeared to equal its breadth. The convolutions depressed by it comprised the upper portion of the precentral gyrus, the adjacent area of the first frontal gyrus, with part of the second frontal gyrus, the marginal gyrus, and probably to some extent the gyrus fornicatus. Aphasia with paralysis of the right arm and of the right side of the face followed the operation. The aphasia soon disappeared. When she left the hospital, on Jan. 24th, 1897, she had complete motor paralysis of the right hand and forearm, with impaired sensation in the fingers. She had lost the pain in her arm which existed previously to the operation and which was temporarily increased by it. The facial paralysis had also disappeared. She had no recurrence of the fits after the removal of the tumour. At the present date (March 26th, 1897) movement is returning in the fingers, but the rest of the arm is still paralysed.—Dr. JAMES TAYLOR said that it was very curious that there was no affection of the leg with a lesion in this position. He thought that the loss of sensation confined to the forearm indicated a lesion of the cortex rather than of the internal capsule.

Mr. RICHARD BARWELL related a remarkable case of Extravasation of Urine in a man, aged thirty-six years, who previously to Nov. 24th, 1896, was perfectly healthy. On that night after coitus, in which nothing unusual occurred, he went to sleep, and on waking next morning found the scrotum much swollen; during the next few days the swelling increased, and, although feeling perfectly well, he sent for Dr. Nix on the 27th. On the 29th Mr. Barwell saw the patient in consultation. He had a subnormal temperature and a rather feeble, quick pulse, 108; the tongue was slightly furred, and the constitutional symptoms were slight, and he said he felt quite well up to four hours ago, and even now only "a little down." The scrotum was greatly distended, boggy to the touch, red, and studded with blotches here and there of dark-brown discolouration; the penis was but slightly swollen or reddened and free from sloughy spots; the perineum was much distended to within a very short distance of the anus, and exhibited two sphacelated spots. He asserted that he never had any difficulty in passing urine, which flowed in a full-size stream. With Dr. Nix's sanction Mr. Barwell made deep incisions in the perineum and scrotum, exposing the superficial muscles of the urethra and the testicles. The sodden tissues were full of urine with the usual ammoniacal, sloughy odour. One bleeding vessel, being too rotten to bear either torsion or ligature, was secured by leaving on it a pair of forceps; the very soft state of all tissues rendered interference with the urethra unadvisable. Five days after the incisions were made the patient lost about four ounces of blood by the rupture of a vessel in or close to the right testicle. This depressed his health considerably, but freer stimulation overcame the condition in

about eight hours. The rare and interesting features of this case lie in the local condition. Rupture of the urethra as an immediate result of coitus has once or twice been reported, but invariably in the penile portion of the tube, never, so far as Mr. Barwell was aware, in the membranous part. A No. 12 catheter passed into the bladder without encountering the slightest obstacle, and the treatment for stricture of the urethra was therefore unnecessary. The man lost by sphacelus about four-fifths of the scrotum, but the parts healed, and the whole was quite sound exactly six weeks after, the testicles being enclosed in a new bag, which, though it looked tight, interfered neither with comfort nor function.—Mr. MAKINS thought that extravasation of urine without discoverable lesion was not so very infrequent. He questioned if coitus could possibly have produced it in this case, as there was no stricture.

EPIDEMIOLOGICAL SOCIETY.

The Prevention of Tuberculosis.

A MEETING of this society was held on March 19th, Mr. SHIRLEY F. MURPHY, Vice-President, being in the chair.

Dr. JAMES NIVEN (Manchester) read a paper on the Prevention of Tuberculosis. In reviewing the history of the subject he said that in 1865 Villemin not only proved by experiments the inoculability of tubercle, but showed a clear apprehension of the etiology of the disease in man and animals, especially its dependence on overcrowding and deficient ventilation. But Koch, by his demonstration of the bacillus and by his discovery in tuberculin, not, indeed, of a cure, but of an almost unerring means of diagnosis, at once perfected our knowledge of the pathology and etiology of the disease. G. Cornet showed the absence of infectivity in the dust of rooms and hospital wards where precautions were taken against the drying of the sputa and also proved the rapidly fatal action of light on the bacilli; on the other hand, he demonstrated the insignificance of so-called predisposition compared with the influence of overcrowding, dirt, darkness, and damp, and he demonstrated the necessity of prolonged and close association with tuberculous patients for the direct infection of healthy persons. The Registrar-General's statistics showed an enormous diminution in the mortality from phthisis and tuberculous diseases since 1850, but Dr. Niven feared that the improvement must be to a great extent more apparent than real, and explicable rather by changes in nomenclature and by errors of diagnosis than by sanitary progress. Recoveries from the earlier stages of tuberculosis were more frequent than was commonly supposed, the records of necropsies in hospitals at home and abroad showing traces of healed lesions in from 20 to 50 per cent. of persons dying from other diseases. Tuberculosis was very rarely, if ever, congenital. Boltz in 2576 necropsies of children failed to find the smallest evidence of tuberculosis in any under one month, but from the third to the sixth month 3·6 per cent., from this to the twelfth month 18·3 per cent, and in the following years about 30 per cent. were more or less tuberculous. The observations of Koch on rabbits and guinea-pigs, and of Bang and Siédaingrotzky on cattle, have established the fact that the young of tuberculous animals were always born healthy and that they remained so if removed from their parents immediately after birth. The early diagnosis of the disease was of the utmost importance in man and domestic animals alike, especially in the cow, whose milk was a potent factor in the spread of tuberculosis among children. The sputa of all patients with chronic coughs ought, therefore, to be examined; and tuberculin, one small injection of which can do no harm, is a still more certain test applicable in every form of the disease. Examinations of cows and of milk in Germany, Denmark, America, and in this country have revealed an alarming prevalence of tuberculosis, especially in town cowsheds and in large herds; but, as Bang had conclusively shown, the disease might be extinguished with no loss to the owner if all the herd were tested with tuberculin and if those that re-acted were entirely separated from the rest and either fattened for the butcher or kept for a time for breeding, their calves being promptly removed to the healthy stalls. The test should be repeated twice a year till no more reactions take place, and all new purchases should be treated in a like manner. It would be well if the managers of public institutions would require a certificate of the freedom of milk from disease, and if dairymen were encouraged to provide such milk especially for infants. Men suffering from tuberculous phthisis should not be employed among cows, for the danger of infection was mutual. The milk of tuberculous cows should not be given even to pigs unboiled, for they and horses were liable to the disease. Unless the disease were far advanced there was little risk in the use of the flesh as food if all the affected organs were rejected. The sputa of phthisical persons were the great vehicles of infection. They should always be expectorated into spittoons, the use of handkerchiefs should be forbidden, and workmen in factories and workshops should be provided with Dettweiler's pocket spittoon. Railway companies should prohibit spitting in carriages, and should supply the proper vessels for the purpose; similar rules should be enforced in lodging-houses, &c. Heredity in the strict sense was as improbable as it would be in the case of small-pox; it meant only a susceptibility to infection in persons who had narrow chests and feeble constitutions, or were prone to catarrhal affections, leading to abrasions of the mucous membranes, and favouring inoculation with the spores which in a sound lung would be quickly destroyed by the leucocytes and cells of the epithelium. The rooms and houses of phthisical patients should be frequently cleaned without the raising of dust, and should be periodically disinfected; this was especially necessary in so-called health resorts, which were often foci of infection, as statistics and clinical observation amply proved. Dr. Niven advocated notification, while admitting the difficulties consequent on the long duration of the disease and the failure of the scheme which had been tried for a time in Manchester. He concluded by describing the methods for safeguarding cows and the regulations for dairy farms and cowsheds prescribed by the sanitary authorities in Manchester, as well as suggesting a system of veterinary inspection and control which might be undertaken by the county councils.

Dr. RANSOME said that he would not treat the patient as a leper, but would rather improve his surroundings. He had shown that in a dark, close atmosphere the bacilli could be cultivated for a long time in the condensed moisture of a room, but that in clean, dry, sunny apartments they soon died out. He believed that the reduction in the death-rate was real, and that it was due to sanitary improvement.

Dr. HERON maintained that prolonged and intimate association was necessary for personal communication of the disease, as had been experimentally proved by Koch, and remarked that Kitasato had shown that guinea-pigs might often be infected by bacilli too enfeebled to attack man.

Dr. PAYNE, Surgeon-General MCLEOD, Dr. WILLOUGHBY, Dr. SEATON BUCHANAN, Dr. BULSTRODE, and Dr. GOODALL also spoke.

OPHTHALMOLOGICAL SOCIETY.

Adjourned Discussion on Retro-ocular Neuritis.

A SPECIAL meeting of this society was held on Feb. 24th to continue the adjourned discussion on Retro-ocular Neuritis, Mr. E. NETTLESHIP, President, being in the chair.

Mr. W. H. JESSOP referred to cases illustrating the origin of the disease in question in tooth irritation and in fractures of the orbit, where atrophy of the nerve followed in about a month. The forms of neuritis associated with disseminated sclerosis and locomotor ataxy differed from the foregoing in the peculiar bluish-white appearance of the papilla, but were indistinguishable in aspect from one another. Though the visual fields and appearance of the nerve remained unaltered in the latter, in about four years there was usually complete loss of light perception. Hysterical and diphtheritic cases recovered completely.

Mr. QUARRY SILCOCK, referring to the frequency with which the axial fibres of the optic nerve were affected, added another possible explanation to the suggestions already made by Mr. Marcus Gunn. This was that near the optic foramen the axial fibres were furthest removed from the vasa vasorum, so that any interference with the blood current might be expected to affect this tract first. He demurred to the greater functional activity of the fibres or of the lymph-flow in this region predisposing to degeneration under the influence of pressure. He referred to cases of irregular diabetes in which the defect of vision was more marked than the colour scotoma, where the symptoms were referred by Sir W. Broadbent to high arterial tension, and in which with

lowered blood pressure the scotoma disappeared and the vision became normal. Subsequently indiscretion in diet led to the re-appearance of glycosuria, and it was a question whether the ocular symptoms were due to the direct action of a poison or of altered blood pressure on the nerve. Alcohol led to arterial sclerosis, and this to exudation from the vessels, producing transient œdema, which might account for the transitory character of the manifestations in the eye. He thought that, except in direct orbital inflammation and injury, the cause of the disease must be sought in general diseases like syphilis, gout, and rheumatism, and this would accord with the benefit derived from salicylate of soda and blisters in the cases alluded to by Dr. Hill Griffith.

Mr. HOLMES SPICER spoke of cases which did not improve, but in which the scotoma remained. They occurred in males beyond middle life, who were the subjects of sudden failure of vision, unaccompanied by pain and independent of assignable cause. There was some swelling in the disc, which was best observed by the parallactic movement and apparent constriction of vessels. The use of tobacco had been quite moderate in these cases. Usually, failing to improve, they ceased to attend until the other eye began to fail. There were commonly general symptoms, such as paralysis or mental hebetude, which came on later, indicating progressive degeneration of the nervous system.

Dr. RISIEN RUSSELL described the changes he had met with in the nervous system in a fatal case of disseminated sclerosis, which were identical in their naked eye and microscopic appearances in all parts, including the optic nerve and tract, though it was not possible to say whether they originated in the nerve elements or the interstitial tissue. The changes in the optic nerves were advanced, both being completely destroyed in front of the chiasma, and there were extensive areas of degeneration in the optic tracts, but strangely enough there were districts of undestroyed fibres between. Optic nerve changes were more common in disseminated sclerosis than Dr. Gowers seemed to allow, but the visual defect was often transitory at first, whereas in tabes it was permanent. The patient in question had come under notice twenty-five years before with paralysis of both legs, when there occurred sudden complete blindness with inability to move the head, recovery occurring in two days from all the symptoms except the loss of vision in the right eye, which was permanent. On admission to the hospital there were symptoms indicating postero-lateral sclerosis. In the right eye there was bare perception of light with faint reaction of the pupil. The vessels appeared to be normal, but there was atrophy of the disc. He died from what appeared to be a sudden myelitis of the upper part of the cord, though there was no evidence of this at the necropsy. There was postero-lateral sclerosis, and in the cranium the dura mater was adherent behind the foramen opticum, binding down the nerve, which was consequently torn in removing the brain. This right optic nerve was destroyed from the eyeball to the chiasma and flattened.

Dr. MACNAUGHTON JONES said that these cases might be regarded either from a clinical or pathological standpoint. He had never seen a permanent scotoma result from frequent attacks of migraine, as had been mentioned by Mr. Cross. The cases he had met with were characterised by aberrations in the colour field with variable changes in the disc, these being sometimes absent, the symptoms being limited to one eye. Complications were rare and recovery was general. He attributed the condition to poisons such as alcohol, tobacco, syphilis, gout, or to grief, mental worry, or eye strain, but he had not encountered it after febrile diseases. Cases dependent on functional changes were probably temporary and those due to organic lesions permanent.

Mr. ADAMS FROST quoted thirteen cases of acute retro-ocular neuritis in which the loss of vision occurred in from one to three days and amounted in some to loss of perception of light. Three only were bilateral. There was hyperæmia of the disc and in some papillitis two days later. The prognosis was good, all the cases recovering, seven completely.

Mr. DOYNE, after eliminating instances which might be due to tobacco and other assignable causes, selected eighteen cases, which he divided into binocular and monocular varieties. Of these, the former included eleven patients in whom there was but slight sign of inflammation in the fundus, and of whom only two fully recovered. Of the seven monocular instances five were in women. There was more evidence of optic neuritis, and all recovered.

The PRESIDENT said the term retro-ocular neuritis no doubt covered many clinical conditions, and it was evident that in the present discussion cases of widely different nature had been described. He selected 120 cases which he divided according to their clinical aspect into several groups. 1. Monocular and idiopathic included the smaller number, which all recovered. 2. Cases ranging in age from sixteen to forty years, probably syphilitic, of which thirty-eight were females and sixteen males, all of whom recovered and exhibited no general nervous symptoms. (The symptoms in some of these cases were probably due to gummata of the nerve.) 3. Nineteen cases, including eight men and eleven women, thirteen of whom were aged over forty years, who did not recover and in whom the pain at the onset was more intense and lasted more than four days. 4. Five cases, three men and two women, in whom vision failed in both eyes at short intervals, one attack overlapping the other, followed by slight pallor of the discs and complete recovery, the ages ranging from twenty-three to thirty-five years. 5. Cases of disease of the general nervous system, chiefly disseminated sclerosis and locomotor ataxy, in which both eyes failed at longer intervals, the disc ultimately becoming sclerosed. Other cases were probably connected with disease of the teeth or of the sphenoidal sinus.

The discussion terminated with the replies of Mr. MARCUS GUNN and Dr. BUZZARD, who had introduced the subject.

HUNTERIAN SOCIETY.

Cerebellar Tumour.—Mental Disorders of the Climacteric Period.

AN ordinary meeting of the society was held at the London Institution on March 24th, the President, Dr. G. E. HERMAN, being in the chair.

Dr. HINGSTON FOX showed a case of Cerebellar Tumour (?). The patient was a woman, aged thirty-four years. She had a staggering gait, weakness of the right-hand grasp, and double optic neuritis. There was no spasm of the muscles of the back or conjugate deviation of the eyes. Weakness and pains in the legs, with vertigo and headache, began a year ago. Phthisis was present in the family.—Remarks were made by Dr. F. J. SMITH.

Dr. WILLIAM RAWES read a paper on Mental Disorders of the Climacteric Period. He first pointed out that medical men are frequently consulted at this period about symptoms which are the precursors of mental disease, and that the climacteric period is liable to considerable variation as to the age at which it appears and also as to its duration. In 56 cases the average was just under forty-seven years. Most women suffer from some form of neurosis at the climacteric, and any physical malady is liable to be aggravated, whilst many women are brought dangerously near the brink of mental disease; still, it is doubtful if the menopause is sufficient to determine an attack. Heredity is a potent factor in the production of insanity; it was traceable in 48 per cent. of the cases. The prospect of recovery is not so gloomy as supposed. Previous attacks from whatever cause render the menopause a source of great risk. Alcoholism is another factor. The prognosis is much more favourable when the alcoholism has been a phase in the insanity and not a habit indulged in for years. Grief and mental anxiety are the most common causes which produce a rapid onset of insanity at this period, whilst remorse is a frequent cause of the restless cases of melancholia. Worry caused by pecuniary losses is a contributing factor, but the most important, on account of its bearing upon treatment, is a combination of circumstances which may be termed "isolation with introspection"; its influence was traceable in 80 per cent. of the cases. This occurs especially in women who, having led active lives, have then little to do. They examine themselves and their feelings as it were with a microscope, so that there is scarcely any limit to the number and variety of delusions produced in this way, which in the religious type tend nearly always to become suicidal. In some cases there has been found a history of irregularity and excess in menstruation. Melancholia is by far the most common character of mental disease at the climacteric—it occurred in 60 per cent. of the cases; 25 per cent. had mania, 15 per cent. delusional insanity, 46 per cent. showed a suicidal tendency; there were hallucinations of hearing in

50 per cent., of taste in 13 per cent., of vision in 26 per cent., and of smell in 10 per cent. About 50 per cent. of the patients recovered. Treatment consists in change of environment, open-air exercise, diet, electricity or massage, and tonics. The patient should also take up some form of congenial occupation. If delusions lead to attempted suicide the patient should be certified; but when this is necessary she should be told in a perfectly candid manner why it has been done. Deception practised on patients is harmful and wrong from every point of view.—Dr. SAVAGE agreed as to there being no special form of climacteric insanity, but rather a distinct grouping of symptoms which may precede, accompany, or follow the menopause. Symptoms following surgical removal of the ovaries are often only exaggerations of ordinary climacteric symptoms. There is a deadness or visceral anæsthesia in these cases, and where there has been puerperal insanity the menopause is a source of great danger. The symptoms associated with the climacteric are often hysterical and chiefly show the form of "rages," such as swearing. The symptoms of isolation and introspection may be termed "widow's disease." Travelling is not suitable in many cases.—Dr. J. F. WOODS stated that the most important agent in treatment is sleep, and that hypnotism is useful in melancholia.—Remarks were made by Dr. ROBERT JONES.—Dr. RAWES replied.

LIVERPOOL MEDICAL INSTITUTION.

Calculus in the Ureter.—Plastic Operation for Lupus.—Malaria in Central Africa.—Excision of the Rectum.

A MEETING of this society was held on March 25th, Dr. RICHARD CATON, President, being in the chair.

Mr. LARKIN read a note on Calculus in the Ureter. In cases in which operation was performed for stone in the kidney, and where no stone was to be found in the kidney, he was in the habit of turning the kidney out upon the loin and examining the whole length of the ureter by passing a probe along it into the bladder. On three occasions he had by this means detected a stone in the ureter.

Mr. ROBERT JONES showed a case in which a Plastic Operation for Lupus had been performed. The patient had been subjected to twenty-five operations without permanent benefit. Mr. Jones excised the lupus, carefully avoiding the facial nerve and Stensen's duct, and reflected a large flap from the front of the neck. This was adapted to the raw surface occasioned by the removal of the lupus. The edges of the skin incisions in the neck were then brought together. The result was very satisfactory.—Mr. PAUL mentioned that he had successfully covered the back of the hand, from which he had removed a large patch of lupus, with a Tagliocotian flap from the abdomen.

Mr. STANLEY KELLETT SMITH read notes of certain clinical points in Malarial Fever which presented themselves during an exploration of the country west of Lake Nyassa. There were under observation ten white men and about 700 blacks. It was found that among men on the march there was a close connexion between fairly rapid alterations of level and the occurrence of malarial manifestations. Whenever the route lay across level or gently sloping country fever was rare, but quick change from high veldt to low veldt and *vice versâ* was always marked by a great increase in the number of attacks. This point was illustrated by fever maps of white members of the expedition and by a sectional survey of the main line of march. Mr. Smith supported the probability of gradually acquired immunity, and drew attention to the prophylactic value of small daily doses of quinine in the form of the neutral sulphate sufficient to cause slight aural disturbance.—Dr. BUCHANAN, Dr. CARTER, Dr. A. DAVIDSON, Dr ARCHER, and Dr. G. JOHNSTON took part in the discussion.

Mr. PAUL read a paper on a Second Series of Fourteen Cases of Excision of the Rectum. Two were for syphilitic stricture two for villous tumour, and ten for cancer. Short lengths of bowel were excised by the perineal and vagino-perineal incisions when the disease was situated in the lower third, and by a posterior median proctotomy when in the middle third. For extreme excisions a sacral flap was employed. The best results were obtained after removal of a short length of bowel by suture of the upper to the lower end. Approximation after extensive excision was considered bad practice, being more dangerous, and little, if any, better in result than when the stump was brought out and attached to a glass tube. The four non-malignant cases were cured. Of the malignant cases two died from the operation, two since from recurrence, and the remaining six were under observation. Of the previous series of fourteen cases, all malignant, three were cured (one of these having been watched for ten years and the other two for four years). A fourth was probably well, but could not now be found. Two died from the operation, and the remaining eight all died from recurrence after an average period of two years.

MIDLAND MEDICAL SOCIETY.

Election of Officers.—Paræsthesia.—Exhibition of Cases and Specimens.

A MEETING of this society was held on March 17th, the President, Dr. A. H CARTER, being in the chair.

Mr. J. W. Taylor was elected President for the ensuing session, Mr. Garner was re-elected treasurer, and Dr. Kauffmann and Mr. Christopher Martin were elected secretaries.

Dr. SHORT read a paper on an Unusual Form of Paræsthesia, marked by Feeling of Coldness and Numbness in the Legs. The peculiar alteration in sensation dealt with in the paper was entirely subjective and not associated in any of the cases with objective alteration in sensation, motion, or nutrition. Nine cases of this condition were cited. The patients were all men of ages varying from nineteen to forty-nine years. Complaint was chiefly made of a cold feeling, generally associated with numbness, over the front of the thigh, round the knee-joint, and down the back of the leg in the calf and heel. One or two of the patients also experienced the feeling down the back of the thigh and down the shin. The sensation was comparable to that produced by cold wet clothes placed next to the skin. In addition there was an irritable condition of the mind due to the presence of the abnormal sensation, and absent when the latter was in abeyance. The symptom was periodic, resembling in this respect neuralgia, and at certain times might be entirely absent. In all other respects the patients were apparently quite well. The faradaic brush applied to the legs gave immediate, though only temporary, relief. Antipyrin and gelsemium also gave some relief in one or two of the cases, but of the many other drugs that were tried none had any appreciable effect. The condition was considered to be one of neuralgia, with possibly slight neuritis in several of the most severe cases.

Mr. F. MARSH showed a girl, ten years of age, whose left upper extremity he had removed for a Sarcoma of the Head of the Humerus by inter-scapular thoracic amputation after Berger's method, the only departure being the division and forci-pressure of the supra-scapular artery prior to the formation of the flaps, leaving only the posterior scapular artery to be secured subsequently. Extremely little blood was lost, but there was considerable post-operative shock and restlessness. A rapid recovery was made, the wound healed by primary union, and the patient was up on the sixth day. The growth was an endosteal mixed-celled (spindle and myeloid) sarcoma.

Mr. MARSH also showed a man, sixty-three years of age, from whom a Papilloma of the Larynx had been removed by Thyrotomy. The epiglottis concealed the greater part of the larynx. An incision was made in the middle line of sufficient length to expose the thyroid cartilage above and the upper four rings of the trachea below. The crico-thyroid membrane and the thyroid cartilage were then divided, and a papilloma attached to the under surface of the cords at the anterior commissure was removed with forceps and scissors. There was but little hæmorrhage. The thyroid cartilage and the openings in the trachea and crico-thyroid membrane were closed with catgut sutures. There was no subsequent dyspnœa or other troublesome symptom. The greater part of the wound healed by primary union. The man could now speak without difficulty and his voice was fairly clear.

Dr. THOMAS WILSON showed: (1) A Fibro-myomatous Uterus, with the Ovaries and Tubes; and (2) a Fibroid, the

size of a Fœtal Head, removed through the vagina together with the uterus.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Porro's Operation.—Kolpo-panhysterectomy for Cancer.—Twisting of the Pedicle in Ovarian Tumours.—Exhibition of Specimens.

A MEETING of this society was held on March 19th at the Medical School, Sheffield, Mr. H. BRIGGS (Liverpool), the President, being in the chair.

Dr. KEELING (Sheffield) related a successful case of Porro's Operation. The patient was thirty-five years of age and had had two children. The first labour had been normal; there was no pelvic deformity. After symptoms of eclampsia this her second labour set it, and on examination no trace of the os or cervix uteri could be found; but later under an anæsthetic a dimple was made out representing the cervix. This was gradually dilated, when it was found that an opening had been thus made into the peritoneal cavity behind the cervix. Cæsarean section was at once decided upon, and eventually Porro's operation was performed on account of atony of the uterus and great oozing of blood. The stump was fixed in the lower angle of the wound. The operation was successful, the mother and child being exhibited.

Dr. RABAGLIATI (Bradford) related three successful cases of Kolpo-panhysterectomy for Cancer. The first patient was forty-one years of age, and had had fourteen pregnancies and fifteen children in twenty-three years. The os uteri was covered by a large patch of foul-smelling ulceration, the uterus being partly fixed; operation was only undertaken at the earnest wish of the patient and relatives. There was severe shock, but an uneventful recovery. Eight and a half months later there was a recurrence in the posterior part of the cicatrix. The second patient was twenty-eight years of age and had had three children. There was a history of syphilis. She had a cauliflower excrescence involving the whole of the cervix and encroaching upon the vaginal mucous membrane and fornices; the operation was successful, but recurrence was found in the posterior part of the cervix in the course of the tenth week afterwards. The third patient was thirty-nine years of age and had had three children. She had suffered for two years from pain and for eighteen months from watery, blood-stained, offensive discharges. There was a large patch of ulceration on the inner surface of the cervical canal occupying five-sixths of the circumference, and also on the outer aspect of the cervix. The uterus was moveable, but high up and difficult to reach. The bladder was accidentally opened by the anterior incision, although a male sound was in it as a guide, and was sutured. The patient did well until the eighth day after the operation, when she had a rigor; her temperature was 103·2° F., her pulse 160, and phlebitis of the leg supervened, with herpes about the lips and mouth. Ultimately she recovered, and so far has had no recurrence (ten weeks after the operation). All three cases were operated upon by Martin's method, and in all the microscopic report was epithelioma. Dr. Rabagliati gave an account of the anatomical considerations which make the prospect of non-recurrence of uterine cancer more favourable than in other cases of cancer.

Dr. SINCLAIR (Manchester) read a paper on Twisting of the Pedicle in Ovarian Tumours. The cases on which the remarks were based were four consecutive ovariotomies, and the object of the paper was chiefly to call attention (1) to the severity of the symptoms occasionally produced by torsion; (2) to some difficulties in the diagnosis; and (3) to the question of immediate operation. In all these four cases ovariotomy was performed without delay, and the result in each case was satisfactory.

Dr. HELLIER (Leeds) showed a Placenta from a patient who had suffered from hæmorrhages during the period of gestation. Premature labour was induced at the sixth month.

Dr. LLOYD ROBERTS (Manchester) showed a Cystic Tumour, the cavity of which consisted of the calyces of a cystic kidney.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

Dilatation of the Stomach.—Relapse in Scarlet Fever.—Celandine in Cancer.

A MEETING of this Section was held on March 12th, Dr. G. F. DUFFEY, the President, being in the chair.

Dr. BOYD read a paper on the Significance of Dilatation in Functional and Organic Diseases of the Stomach.—Dr. DOYLE said that lung troubles, such as chronic bronchitis, were causes of partial dilatation of the stomach, on account of the passive congestion interfering with the nutrition of the organ. Another cause was the badly kept condition of the teeth of the poorer classes, and the short time given by them to the proper mastication of their food, which was usually of a starchy nature.—Dr. POTTER said that he had frequently found a large teaspoonful of vegetable charcoal taken an hour or two after meals very beneficial in the treatment of dilated stomach.—Dr. TWEEDY referred to a case which he had formerly shown where the stomach filled almost the entire abdominal cavity, this condition being due to the habitual eating of large quantities of potatoes. The pressure of the stomach filled with a large quantity of food of this nature, which cannot be got rid of as quickly as it ought to be, was one cause of constipation, and, moreover, a dilated stomach filled with starchy food could, by drawing down the pylorus and the first part of the duodenum, produce a kink at the junction of the first and second parts of the duodenum sufficient to obstruct the free passage of food.—The PRESIDENT believed that muscular wasting was really at the bottom of many forms of dilatation. The extent of the dilatation could be determined by giving the patient effervescent powder or by filling the stomach with large quantities of fluid.

Dr. E. MACDOWEL COSGRAVE read a paper on two cases of Relapse in Scarlet Fever. One was a girl, nine years of age, who was admitted into Cork-street Fever Hospital on Nov. 12th, 1896, suffering from a severe attack of scarlatina anginosa, the temperature falling to normal on the ninth day. On the twenty-eighth day, whilst desquamation was occurring in large flakes on the feet, the child had an attack of vomiting, the temperature ran up to 105·8° F., and a punctiform rash appeared, the tongue and pharynx being also typically affected, and albumin appearing in the urine. On the eighth day of the relapse secondary desquamation commenced and gradually spread over the body. The second case, also a girl aged nine years, was admitted to Cork-street Fever Hospital on Nov. 27th, 1896, suffering from well-marked scarlet fever. Eighteen days after admission, whilst free desquamation was going on, the child complained of headache and sore-throat, the temperature rose to 105·8° F., and a punctiform rash appeared; desquamation where occurring was increased, and where finished was repeated.—Dr. J. W. MOORE agreed that true relapses had occurred in Dr. Cosgrave's cases, and said that by means of isolation hospitals it was possible to produce many cases of relapse in scarlet fever, provided that the patients were kept in the wards long enough.

Dr. JOSEPH REDMOND read a paper on the Treatment of Cancer with Celandine (chelidonium majus). He exhibited patients suffering from epithelioma of the tongue and of the lip, and read notes of two cases—one of cancer of the œsophagus and the other of cancer of the liver. All the cases were improving under treatment with celandine.—The PRESIDENT said that it was remarkable that so little pain had been caused by the use of the drug, seeing that it was an irritant and an active narcotic poison.—Dr. J. W. MOORE said that some of the cases brought forward by Dr. Redmond were a little open to doubt as being cases of cancer, and that the symptoms were much more like acute dyspepsia.—Dr. REDMOND, in reply, said that he had never noticed any intense diarrhœa after administration of the drug.

MERTHYR TYDVIL HOSPITAL.—A meeting was held at Merthyr Tydvil on March 15th, under the presidency of the high constable, for the purpose of raising a fund in support of the endowment of the Diamond Jubilee Ward of the Merthyr Tydvil Hospital. The chairman announced that excellent progress had been made towards raising the sum of £7000, which it had been suggested would be sufficient to endow the five beds which the ward would accommodate.

Reviews and Notices of Books.

Royal Infirmary Clinique. By ALEXANDER JAMES, M.D., F.R.C.P. Edin., Physician to the Royal Infirmary, Edinburgh. Edinburgh: Oliver and Boyd. 1896. Pp. 166 Price 5*s*.

THIS small volume contains sixteen lectures delivered by Dr. James in the wards of the Royal Infirmary, Edinburgh. They are excellent reading and amply confirm the reputation of the author as a clinical teacher. A case of pulsating Tuberculous Empyema is well described, and the conditions leading to pulsation in pleural effusions are fully discussed. Two of the most interesting chapters are those on a case of Renal and Cardiac Disease, with special reference to the Diurnal and Nocturnal Excretion of Urine and a case of Primary Contracting Kidney. The latter lecture is so good as to be well worthy of comparison with Trousseau's work. Dr. James brings out very clearly the importance of regular testing of the relative amounts of day and night urine as a valuable indication of organic renal disease (p. 39): "In health the proportion of urine passed during the day hours is very much greater than that passed during the night. Roberts, for example, with a total daily quantity of 30 oz. 6 dr. of urine, gives for the sixteen hours of waking 30 oz. 2 dr., and for the eight hours of sleep only 4 dr. This gives as the amount of the secretion per hour for the day a little less than 2 oz., and for the night about ½ dr.: or, splitting the total quantity into two, one representing the amount passed between 8 A.M. and 8 P.M. and the other the amount passed between 8 P.M. and 8 A.M., this would give for the day quantity about 27 oz., and for the night about 3½ oz." He quotes Dr. Claude Wilson's observations: "That in debility, however produced, the diurnal and nocturnal rates approximate to each other, that this is specially marked in cases of cardiac disease, and more so still in organic disease of the kidney. One case is especially interesting, in which the approximation between the day and night rates of excretion was sufficient to make me strongly suspect organic (waxy) disease of the kidney, though there was no noticeable polyuria nor any albumin. This patient died two months later, when he was found to have extensive waxy disease of both kidneys as well as of other organs, though no albumin had been detected in his urine until a week before his death, and then only a trace." Dr. James sums up: "Of course alterations can occur in other morbid conditions and even occasionally in health, but when it occurs habitually and cannot be explained as due to other morbid causes it may enable you earlier than any other symptom to contemplate the onset of organic renal disease." The point is one which deserves much further precise investigation. In passing we would protest against the use of the word "cirrhotic" (p. 35) to describe the small granular kidney; it has become more customary to do so of late, but it is undesirable. The two cases of cirrhosis of the liver in children are of great interest clinically from the fact that Dr. James lays stress on the relationship which seems to exist between tuberculous infection and cirrhosis of the liver. Both in children and in adults the connexion appears often to be definitely more than a mere coincidence. The lectures on Friedreich's Ataxy and Addison's Disease are very good.

A Book for Every Woman. Part I.: The Management of Children in Health and out of Health; 1895. Part II.: Woman in Health and out of Health; 1897. By JANE H. WALKER, L.R.C.P. Irel., L.R.C.S. Edin., M.D. Brux., Physician to the New Hospital for Women, &c. London: Longmans, Green, and Co. 1897. Price 2*s*. 6*d*. each part.

THE first part of this book, as indicated in the title, is concerned with the management of children in health and out of health. In the introduction the author defines a healthy child as "one who is free from self-consciousness, whether in mind or body." The object of the volume is "to give plain and simple directions which, if carried out, will tend to keep healthy children well and help delicate children to become stronger." The author is strongly opposed to the practice of giving children any alcoholic beverages whatever. As she says, they are never necessary for a healthy child, and no doubt, besides being unnecessary, they may easily be mischievous. A diet table is given for children of various ages, which may be useful to the inexperienced matron and others. In the second part of the work, devoted more especially to the adult woman, there is a great deal of good advice of a necessarily more or less general character. As regards cycling, we observe that, according to the author, "it exercises the legs and lower part of the body and increases lung power. Like everything else, it is best done by one in good muscular training, and a girl, who perhaps has never done any other active thing, who compresses her ribs with stays and her feet with shoes, such being the fashion, who buys a bicycle and learns to sit it, such also being the fashion, is very likely to 'override' herself and find that it does not agree with her." No doubt, as the author says, "the extraordinary benefit derived from it by so many young women proves only how little exercise they were in the habit of taking. A daily gentle run of a couple of miles would be much cheaper and far better training. Cycling is useful and it is delightful and it is fashionable, but it is not magical." She has also something to say about most other forms of muscular exercise, from gardening to billiards. There are several useful dietaries, such as a diet for fat people, a diet for thin people, and a diet for gouty and rheumatic people, which may be of use to those who like to get the advice they require out of books. We should say that the two volumes will probably prove useful to those for whom they are intended.

LIBRARY TABLE.

Transactions of the American Dermatological Association at its Twentieth Meeting, in 1896.—The meeting last year was at Hotsprings, Virginia, under the presidency of Dr. A. R. Robinson of New York. The Transactions are reprinted from the November and December numbers of the *Journal of Cutaneous and Genito-Urinary Diseases*, but without the plates or cuts. The report is much shorter than usual or else there was less work done. We miss the list of members, with their addresses, which was very useful for foreign workers in dermatology. Among the most interesting papers was A Case of Symmetrical Morphœa attended with the Formation of Bullæ and Extensive Ulceration by Dr. Morrow, and A Milium-like Condition of the Lips by Dr. Fordyce, of which there is a coloured illustration in the November number of the journal already mentioned. A Favus-like Eruption of the Oral Mucous Membrane is published by Dr. Winfield. Dr. Bowen's two cases of Mycosis Fungoides and Sarcomatosis gave rise to an interesting discussion, as did also Dr. White's paper on the Effect of Diet and Alcohol upon the Causation and Course of the Eczematous Affections and Psoriasis. A Pathological and Clinical Classification of the Diseases of the Skin by Dr. Duhring did not elicit much approval from his auditors. Some Glycosuric Dermatoses by Dr. C. W. Allen and Xanthoma Diabeticorum by Dr. Robinson excited interest. This case does not appear to be a typical one. There had never been any glycosuria or jaundice, although the patient had suffered from gall-stones. A large proportion of the lesions had disappeared for a time, but had recurred. The lesions were the size of a pin's point to that of a pin's head, yellowish, with a tinge of red. The urine contained 20 per cent. by

bulk of albumin, but no sugar. Impetigo Contagiosa Universalis was the title of a paper by Dr. C. W. Allen. Some doubt was thrown upon the diagnosis by some of the speakers, and as staphylococcus aureus had not been searched for the true nature could not be proved. Dr. White of Boston was elected president for the ensuing year.

Cerebral Hernia (Cephaloceles) and their Treatment. By Dr. N. K. LUISENKOF. Moscow: The Yakovlef Press. 1896. Price 2½ roubles.—This excellent monograph of 232 pages is a valuable contribution to the literature of the subject with which it deals. It presents an exhaustive discussion of the various forms of this not very uncommon lesion both from their anatomical and clinical aspects. The author is of opinion that the large majority of so-called congenital cerebral herniæ are not true herniæ or protrusions of brain substance, but are teratoid formations, resulting from imperfect separation of the neural canal in the process of development, and sometimes containing no nerve substance at all. All forms of hernia, encephalocele, hydrencephalocele, and meningocele are but different degrees of the same embryonic lesion. They should be treated as other new formations by complete excision of the tumour and, if possible, closure of the opening in the skull by an osteoplastic operation. Only large exencephala, or true herniæ of the brain with much protrusion of brain substance and great deficiency of the skull, are unsuitable for operation. If a fatal result follows the operation it is almost invariably the result of some complication, more particularly of a septic character, and not of the operation itself. The monograph, which was presented by Dr. Luisenkof as the thesis for his doctor's degree, is illustrated with plates showing the aspect of patients suffering from cephalocele, both before and after treatment, and the macroscopic and microscopic appearances of the bones of the skull in typical cases.

Premature Burial, and how it may be Prevented. By WILLIAM TEBB, F.R.G.S., and Colonel EDWARD PERRY VOLLUM, M.D., late Medical Inspector, U.S. Army; Corresponding Member of the New York Academy of Sciences. London: Swan Sonnenschein and Co. 1896. Pp. 400.—It is seldom our ill fortune to come across such a compilation as this volume. That states of trance may resemble death is a commonplace known to every medical man of any experience. In this country at any rate, where a comparatively long period elapses between certification of death and burial, there is no real danger of practical confusion between the two. The tests are ample, and if a shadow of a doubt exists a short delay till putrefaction definitely sets in can in the future be insisted on, as it so often has been in the past; and yet the authors have had the temerity to produce this book, which must needlessly excite the fears of any unfortunate individual who is unlucky enough to read it. Newspaper cuttings, second-hand information, and unverified statements form the chief basis on which the writers build.

The Nurses' Dictionary of Medical Terms and Nursing Treatment. Compiled by HONNOR MORTEN. Third and Revised Edition. London: The Scientific Press.—This manual may have been revised, but if so it has been very carelessly done. For instance, ægobronchophony is defined as "a bleating sound heard on auscultation—a symptom of pleuro-pneumonia." Collodion is said to be gun-cotton dissolved in alcohol. In the preface we are told that "ectomy" means cutting. The purely nursing directions in the book, however, are apparently correct. We might remark that Epsom salts are not the "sulphite" of magnesia.

The Horse: His Life, His Usage, and His End. By Colonel W. LISLE B. COULSON. London: William Reeves. 1896. Price 2*d*.—An earnest and well-written plea for the better treatment of horses. The remarks about the use of dearing-reins, or rather their abuse, are worthy of everyone's attention.

An Autumn Singer. By GEORGE M. GOULD, M.D. Philadelphia: J. P. Lippincott Co. 1897.—This is a small collection of poems, sonnets, and *vers de société*. The sonnet entitled "Unrest" is to our mind the best.

Current from the Main. By W. S. HEDLEY, M.D. Edin. London: H. K. Lewis. 1896. Price 2*s*. 6*d*.—This publication is mainly a reprint of articles which have already appeared in our columns in 1892, 1895, and 1896. Electricity is so much used now as a therapeutic agent, the current being in many instances supplied from the main, that Dr. Hedley's cautions as to the dangers of leakage currents in an electric bath will be found of great value.

Elementary Bandaging and Surgical Dressing. By WALTER PYE. Revised and partly Re-written by G. BELLINGHAM SMITH. Seventh Edition. Bristol: John Wright and Co. London: Kegan Paul and Co. 1896. Price 2*s*.—This little book is mainly a re-issue of portions of the late Mr. Pye's "Surgical Handicraft." The portions on the dressing of wounds have been brought up to date by Mr. Bellingham Smith, and the book will be found very useful for dressers and, up to a certain point, for travellers in wild countries.

A Collection of Ballads. Edited by ANDREW LANG. London: Chapman and Hall. 1897. Price 2*s*.—The old ballad is not only to be valued for its subject, or in many instances its music and pathos, but also for being a mine of old beliefs. The idea of paying tithes to the devil is illustrated in the present collection by the ballad of Tamlane. We might remark that the late Sir James Simpson's grandfather buried a cow alive as a sacrifice to the devil, and also reserved a corner of his farm, albeit the most unproductive portion, for the exclusive use of the same personage.

Physical Exercises in Gymnastics for Girls and Women. By F. J. HARVEY. London: Longmans, Green, and Co. 1896. Price 3*s*. 6*d*.—This is a well thought out little book for the use of teachers in high schools, &c., giving simple and clear directions for organised physical exercises. It is copiously illustrated with photographic plates, and the little essay on the necessity of physical training and exercise contains plenty of common sense.

What to Do in Cases of Poisoning. By WILLIAM MURRELL, M.D. Brux., F.R.C.P. Lond. Eighth Edition. London: H. K. Lewis. 1897.—This well-known and useful little book has been revised and brought up to date by the addition of much new information, and also what the book greatly lacked before—an index. It is an excellent work for the country practitioner, who is often far removed from the help of his professional colleagues.

Our Weights and Measures. By H. J. CHANEY. London: Eyre and Spottiswoode. 1897. Price 7*s*. 6*d*.—Nothing could be more perplexing than our present system—if we may call it a system—of weights and measures, and this is largely to be attributed to the peculiar origin of our standards. Uniformity is hardly to be expected when we remember that the original weight of an English penny called the "sterling" was defined to be that of "thirty-two grains of wheat, well dried, and gathered out of the middle of the ear"; or that "three barleycorns laid end to end" was to be regarded as an inch," subsequently modified by providing that the barleycorns should be "round and dry." The work before us is a practical treatise on the standard weights and measures in use in the British Empire, and the writer is the superintendent of the Board of Trade Standards Department, so that every reliance may be placed upon the information and data it contains. The history of the evolution of our systems of weights and measures from almost prehistoric times is exceedingly interesting, while the account of the present standards and methods of standardisation will be

very valuable to many, and the work is made more instructive by the fact that the standard instruments described are admirably illustrated. It is an indispensable book of reference to scientific men as well as to those engaged in commercial life.

Medical Report of the Royal Infirmary, Liverpool.—This report, the first one issued, contains medical, surgical, and pathological statistics drawn up by the registrars of these subjects respectively—namely, Dr. E. A. Smith, Dr. H. T. Nixon, and Dr. R. Boyce. They are apparently very full and carefully done, but we should suggest in subsequent volumes the addition of a table of all operations performed (and not only gynæcological ones) and some figures as to the administration of anæsthetics; moreover, we do not think that the names of patients should be given in full. The notes upon post-mortem examinations should prove of great value. One case is specially interesting—that of a girl, aged fourteen years, who had died from cirrhosis of the liver. There is a misprint in this table, p. 86, the column which should be headed "age" being headed "No."

The Law of Wills ("Wilson's Legal Handy Books" Series), by C. E. STEWART, M.A., Barrister-at-law, and published by Mr. Effingham Wilson of the Royal Exchange, price 1*s.* 6*d.*, has reached another edition, to which has been added a new chapter dealing with the Finance Act of 1894 so far as it affects the rate of the death duties. Mr. Wilson's series of legal handy books are well known and have deservedly become popular.

JOURNALS AND REVIEWS.

The Phonographic Record.—Mr. Lamming Burton, in the March issue, gives much information for those about to "take a ship." Though the ship may be small it matters not if the captain be a sailor and a gentleman; and before accepting a ship it is well, if possible, to see "the old man." The next thing is to see the cabin and overhaul the medical stores a few days before sailing. Shelves are to be preferred to medicine chests; and, whatever else is carried, chloroform, solution of cocaine, hypodermic outfit, and surgical dressing-case are essential. Refreshing his memory in the pages of a good materia medica, the ship surgeon writes out his order for the drugs to be sent on board without delay. All drugs and instruments in stock are to be examined and held guiltless of activity until they are found to possess it. Ammonia may be scentless, chloral hydrate gone to liquid, pills mouldy or their freshness external, and "the heat of a voyage down South has fused the set of catheters into one solid mass." Bandages and no splints will not do much good, and new enema syringes, fresh catheters, and a couple of trusses should be taken. On the voyage the surgeon's position may be made or marred by his mode of dealing with his first patient. The first case may be a genuine one, but, adds Mr. Burton, "be sure of it." Firemen most often need the medical officer, and we are told their work is "the hardest and worst to be found below heaven"; but a drunken spree before sailing has often to answer for the fireman's illness, and the men are ever ready to be off work and malinger. Mr. Burton says that among the crew of a steamship cases of constipation, diarrhœa, gonorrhœa, cramps, pediculi, debility, syphilis, cuts, burns, hernia, and fractures are commonest, and their frequency in the order given. In noting that the surgeon must remember and be prepared to treat the diseases of the country to which he is bound, Mr. Burton says that ague, dysentery, black-water fever, and malarial boils will be encountered in Equatorial Africa, yellow fever in South America, cholera in India, and sunstroke in all hot countries.

In the *Veterinarian* for March E. W. Carlier's paper on the Pancreas of the Hedgehog during Hibernation is concluded. Dr. Carlier notes that during secretion the cells become smaller, and the lumen of the acinus larger, the nucleus becomes enlarged and clear, and the chromatin is more widely distributed. The ducts have the usual structure. He can find no muscular sheath around the larger ducts, whose walls, however, are surrounded by connective tissue and are pierced by mucous glands. The central acinal cells, which have been described by some as epithelial in character and by others as multipolar nerve cells, are not numerous, but can usually be seen near the mouths of the acini. The amount of connective tissue in the pancreas of the hedgehog is very small; the lymphatics are numerous, as are also the ganglion cells situated in the fibrous tissues surrounding the larger vessels. The Pacinian corpuscles described by Harris are fairly numerous in the hedgehog near the head of the pancreas, as are also the islands of Langerhans; these latter are small, and contain many large cells filled with fine eosinophilous granules. Veterinary-Major F. Smith concludes his observations on the Symptoms and Lesions of Anthrax in the Horse, in which he gives a very full account of the post-mortem appearances of the thoracic and abdominal organs in this disease. He points out that although the whole of the symptoms are found in very few cases, and that it is quite likely that only the bowels and spleen may be affected, or the throat and lungs, or only the throat, and so on, that the lesions described are so typical of equine anthrax in India that there is no other disease of the horse for which they could be mistaken. A note on Filaria Oculi of the Horse by Professor Neumann of Toulouse, and Notes on the Presence of Ganglia in the Lung by A. E. Mettam, and on the Terminal Portions of the Abdominal Aorta and Immediate Collateral Branches by H. V. Mossmann are followed by a series of Clinical Cases by E. Wallis Hoare, by Archibald Hodder, by the Editor, and by W. Murgatroyd; and accounts of the month's progress and reports of the meetings of societies.

In the March number of the *Veterinary Journal and Annals of Comparative Pathology* "Borth" continues his Essay on Diseases of Animals Transmissible to Man, completing his remarks on the tape worms and round worms, and taking up the specific infective diseases, mentioning anthrax, diphtheria, and tetanus. These accounts are somewhat sketchy, but they contain the ordinary information. The Principal of Bombay Veterinary College, Veterinary-Major J. B. Mills, gives a short account of a Mysterious Disease among Horses in Mombasa, Africa. This disease appears to be some form of the Nagana disease, which is supposed to be spread by the tsetse fly, on which Surgeon-Major Bruce is at present making a series of investigations. In this number there are some excellent photographs given to illustrate sprain of the suspensory ligament and flexor tendons in over-reaching in the horse. This application of photography should be of very great value. A good case of recovery of a horse from tetanus after the injection of antitetanin is described, and it appears that the value of antitetanin is greater in connexion with the treatment of tetanus in the horse than it is likely to be in the human subject. In an editorial article dealing with the new Public Health Bill for Scotland the editor complains of the attempt that is being made to give the medical officer of health the power to deal with animals and animal diseases which he maintains should certainly be in the hands of well qualified veterinary surgeons. Reports and proceedings of societies, an account of an experimental study of the aspergillus fumigatus, and an account of the regulations for admission to the Army Veterinary Department, 1897, with an abstract of a paper on the Relationship of the Liver to Fats by D. Noel Paton, legal news, abstracts from foreign journals, and notes and news and reviews make up a very readable number.

Liétopis Russkoi Chirurgii (*Chronicle of Russian Surgery*). Thirteenth year. Part II.—The present number of this excellent Russian journal opens with an illustrated article by Dr. Serapin on the Treatment of Goitre by various thyroid preparations. Of thirty cases under the writer's own observation two were "completely cured"; in nine the result was "good," only a trace of enlargement being left; in ten the success was "moderate"; and in nine the result was negative or the improvement was very slight. Success was therefore met with in 70 per cent. of the cases. Dr. Sapiejko records six cases of the Operative Treatment of Lupus. He is averse to any attempt to treat the disease by medication or by palliative surgical measures. Radical excision, removing the whole affected skin and subcutaneous tissue and not less than one centimetre of the healthy skin around, is advocated as the only measure offering the hope of cure. Subsequent plastic operations are, of course, necessary. A rare case of Supernumerary Nipple is described by Dr. Kumberg. The patient was a male Uzbek Tartar, and the extra nipple was in an unusual position, lying over the eleventh dorsal vertebra and almost in the middle line. Two successful osteoplastic operations for the radical cure of Spina Bifida are recorded respectively by Dr. Gorski of Odessa and Dr. Orlovski. The first patient was aged one year and eight months, and the second only five months; in both cases the treatment was completely successful. Among the reports of Russian surgical societies will be found a discussion on Professor Ratimof's case of Actinomycosis of the Cæcum; more than one of those who took part in the discussion had seen similar cases, and had found large doses of iodide of potassium the most satisfactory form of treatment.

The Middlesex Hospital Journal, No. 2, Vol. I.—The issue of this journal for March only strengthens the favourable impressions conveyed by the first number. A short description of the Davy-Faraday Laboratory is well illustrated, and there is some interesting clinical matter. An article on "The Synthesis of Proteid Matter" is commenced by Mr. C. Reissmann, F.C.S.

St. Thomas's Hospital Gazette for March opens with a portrait and obituary notice of the late Sir Thomas Spencer Wells, "this great and epoch-making surgeon, whom St. Thomas's Hospital is proud to claim as one of her oldest and most distinguished students." Mr. W. G. Sutcliffe continues his recollections of the second Matabele war. Under the heading "A New Remedy" is published the following letter. Possibly it is as well to point out that the "very tall built gentleman" is the present President of the Royal College of Surgeons of England.

"To A Medical
"gentleman at
"Saint Tomies
"Horspitel
"West Minester
"Bridge Road
"London

"Dir Sir

"Just a few lines letting you now my bisness i was in this Horse pitle About 16 years ago and Recive greate atention i Sufered with Stone in the bladder i had to go under a operation Mr Mack comic was my Medicle gentleman a very tall built gentleman i am glad to say i am Still all Rite but my Hargument is i am more a Hurbless And under stand a little bit about the umon body i have got a Remedy Which as never been Expose to the public Only to Working man i New which had the same complaint as i had and that was a stone in the Blader i gave him some powders to last him About 3 Weeks he use one Every Morning in his tea and the same at tea time and the same with the Other man and i can safley say that thease powders did Resolve or Melt the stone in the Blader and am happy to say that they are all Rite and as happy as a sand boy wonce they were dull and low spirited Now Sir i am asking you kindley a little bit advice about this i am Only a por man I am willing to do every working man or gentleman every good but Not harm this Remedy i do not think it ought to be covered Over and the World not to know every think About it it is worth some think it is Only hurbes but not Murkley i should like to have a Ancer i can Not menchin Aney medical gentleman because i do not now one only Mr. Mack comic so i Now close, &c."

St. Mary's Hospital Gazette publishes a list of sixteen cases of death under chloroform administration which have occurred since the commencement of this year. "This high mortality," it says, "must in large part be due to careless administration of the anæsthetic, either sudden overdose, or from inattention to the respiration, rather than to any unavoidable toxic effect of the drug. Since the list was compiled four more deaths under chloroform have been reported, making twenty cases in England alone in two and a half months."

Analytical Records
FROM
THE LANCET LABORATORY.

AUSTRIAN PINE PRODUCTS 'JOSEPH MACK'.
(THE REICHENHALL SYNDICATE, LIMITED, 60, QUEEN VICTORIA-STREET, E.C.)

THE basis of all these good preparations is the essence obtained by distillation from the *pinus pumilio*, which is found in the highest regions of the Austro-Bavarian Alps, the tree selected for the special purpose occurring at an altitude of not less than 6000 feet above the level of the sea. The essence is a fragrant, clear, mobile, and colourless oil, which we find has a constant boiling-point of 78·5° C. It is therefore readily volatilised. Probably the beneficial action which it undoubtedly has when employed as an inhalant, and also when taken internally, is due to its inherent antiseptic properties, and also to the fact that it readily develops peroxide of hydrogen on contact with moisture. A simple experiment illustrates this. On shaking the oil with water the liquid will be found to contain peroxide of hydrogen by the usual tests. It may thus serve as an oxygenator and purifier of air. The Austrian pine products include the following preparations: Pectoral Syrup, for use in pulmonary disorders; Pectoral Paste, used for a similar purpose as a lozenge; Capsules of Pine Essence for administration in bronchitic and allied affections; Bouquet des Alpes, a refreshing and fragrant application for the handkerchief; Anti-rheumatic Bath, a more or less crude preparation containing the entire pine principles, and evolving when placed in hot water an agreeably aromatic smell; Sanitary and Toilet Soap, a soap, as our tests proved, of excellent quality. Not the least favourable feature of these preparations is the fact that while beneficial in certain lines of treatment they are very agreeable to use, the basis being characterised by an especial fragrance.

HAY'S FOODS.
(WILLIAM HAY, GROSVENOR-STREET, HULL.)

An examination, both chemical and microscopic, indicates at once that these preparations possess a high degree of nutritive power and digestibility. The infants' food, for example, contains the constituents of wheat flour of a superior quality, carefully modified by cooking so as to present no obstacle to assimilation, while it contains about 15 per cent. of germ with 15 per cent. of active malt. It possesses a pleasant, distinctly sweet, and malty flavour, and, as might be expected, is very soluble. The appearance under the microscope confirms this statement in regard to its composition, as well as in regard to its method of preparation, which enhances the nutritive value of the constituents. It follows that the proportion of proteids is admirable, while the yield of indispensable mineral nutrients is found to be satisfactory. In a word, the food contains a maximum proportion of all the elements necessary for the sustenance and growth of the infant. "Frumentine" is a pleasant wheaten food, containing a satisfactory proportion of wheat germ. From the character of the preparation made from it in the form, for example, of porridge, the cereal selected is clearly of a superior kind, the flavour being

pronouncedly wheaten and acceptable. It affords, therefore, not only a highly nutritious but a palatable food.

NEW PALATINOIDS.

(OPPENHEIMER, SON, AND CO., 14, WORSHIP-STREET, E.C.)

The palatinoid, consisting of a gelatin case in shape like two tiny watch glasses cemented edge to edge, is well adapted for the administration of creasote and guaiacol. The nauseous character of both drugs is thus avoided in the mouth. The creasote employed in the present instance is said to be specially pure, and therefore non-corrosive and free from any bleaching effects upon the mucous membrane. We have also recently received palatinoids containing a definite quantity of amyl nitrite. They possess the advantage that they may be crushed within the folds of a handkerchief and administered in that way as an inhalation without any of the risk which arises from crushing containers made of glass.

(1) WHOLE MEAL BREAD AND (2) SELF-RAISING FLOUR.

(E. MOGG, ST. MARY-STREET, BRIDGWATER.)

The specimen of whole meal bread was characterised by the entire absence of irritating particles of bran, although the proportion of mineral matters, phosphates, &c., which occur abundantly in bran was high. The bread was evidently malted, and possessed a good wheaten as well as malty flavour. Despite the rich proportion of soluble carbo-hydrates resulting from the introduction of malt, the loaf presented a good light and spongy texture. The self-raising flour acts well, as we found on preparing a specimen of bread in the way directed. The resulting loaf is free from objectionable saline taste, which is always apparent when ordinary baking powder has been used. Judging from the excellent taste and texture of the resulting loaf the flour selected is evidently of superior quality.

"AMBROSIA."

(EVANS, GADD, AND CO., FORE-STREET, EXETER.)

The formula of this preparation, which is a combination of Devonshire cream with an active extract of malt, is an excellent notion. Under the microscope it is not possible to distinguish particles of fat in a separate condition, but on adding water myriads of oily globules are seen to dissociate. The preparation should afford a valuable substitute for cod-liver oil, especially as the fat of cream, as is well known, is more easily assimilated than many other fats, while the co-existence of an active malt essence is calculated to make appropriation still more secure. Moreover, the flavour is attractive. We are not certain that this preparation will keep well.

CALLARD'S NON-FARINACEOUS INFANTS' FOOD.

(CALLARD AND CO., 65, REGENT-STREET, W.)

The microscope showed the complete absence of insoluble starchy matters in this food. It contains rather the digestion products of starch—namely, dextrine and sugar. The preparation is therefore almost completely soluble in excess of cold water. It possesses a sweet and marked dextrine like taste. The soluble carbo-hydrates are judiciously balanced by an excellent proportion—amounting to nearly a seventh part—of proteids. Nor is it destitute of those mineral constituents which are none the less important factors in the infant's diet. The food is evidently prepared with a correct knowledge of the special requirements indicated.

KYDDE'S FOOD.

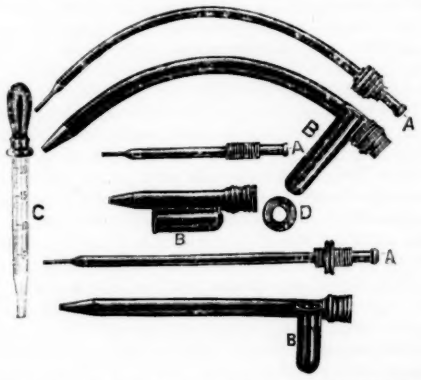
(KYDDE AND CO., 10, SOUTHWARK-BRIDGE-ROAD, S.E.)

This is a food prepared in accordance with the requirements of infants and invalids when used with milk as a necessary adjunct. It is a white powder containing wheat starch, and is sweet and malty to the taste. It is made digestible by having been malted, the presence of a good proportion of soluble carbo-hydrates being due to this method. When prepared in the way prescribed it is both nutritious and palatable.

New Inventions.

A CELLULOID SPRAY PRODUCER.

MR. THOMAS WOODRUFF, of 43, Cavendish-road, Withington, Manchester, has brought out a new spray producer, specially adapted for the accurate administration of medicated solutions or liquids in minute quantities. It is made in three forms so as to allow of the direct action of the spray on the larynx, pharynx, or nasal cavity. In the engraving B represents the outer tube, about three-eighths of an inch in external diameter, with a short wide tube to hold the solution attached at the end furthest from the tapering nozzle. A is the air-tube which passes inside the other one, and is fixed in its place by means of a screw thread cut in the wide portion and also by the lock-nut D. Each pair of tubes, as well as the lock-nut, is made of transparent celluloid. C is a graduated glass pipette with a compressible



indiarubber cap for taking up measured quantities of solution. Air is driven into the tube A by an indiarubber bellows ball worked by hand in the ordinary manner. The lengths of the two straight outer tubes are five and a half inches and three inches respectively. The instrument produces a copious jet of fine spray, well adapted for the purpose for which it is designed. It can be readily taken to pieces for the purpose of being cleansed. Each of the three forms may be obtained separately.

TRACHEOTOMY PILOT.

THE accompanying illustration represents a modification of the usual tracheotomy pilot which I have devised, and which is designed to do away with the dyspnœa and struggling that are so often seen when the inner tube is being inserted after being cleansed. It consists of a hollow silver tube with

an aperture allowing the free entrance of air at its upper end. The tube is fixed into the handle by a screw, this enables the metal portion of the instrument to be thoroughly cleansed; the handle is provided with a shoulder, which assists in keeping the fingers of the operator away from the aperture at the upper end of the tube without interfering with the outer tube. Messrs. Arnold and Sons, London, are the makers.

District Nurses' Home, Plaistow, E. M. D. HARMER.

THE LANCET.

LONDON: SATURDAY, APRIL 3, 1897.

THE public meeting for promoting a national memorial to EDWARD JENNER, held in the theatre of the University of London on Wednesday, March 31st, was an event of great importance. Lord LISTER, who is at the head of the movement, hopes for such success as will place the name of JENNER in this country on the same footing as that of PASTEUR in France, and to raise such a sum as will enable the authorities of the British Institute of Preventive Medicine, henceforth to be associated with the name of JENNER, to pay their devoted and brilliant servants somewhat more adequately than they do at present. The chief interest of the movement is in the attempt to link the names of JENNER and PASTEUR and the other members of the great army of research whose work has sensibly reduced the terror with which we regard such diseases as diphtheria, tetanus, anthrax, and even plague. The justice of this association was fully recognised, not only by such men of science as Lord LISTER and Professor MICHAEL FOSTER, but by representative laymen like the Duke of WESTMINSTER, Lord HERSCHELL, Lord DAVEY, and Sir ALFRED LYALL. As Professor MICHAEL FOSTER said, the doctrine of attenuation was started by JENNER, and those who have developed it so splendidly in recent years have been foremost in their admission of the fact. No monument to JENNER could take a form more honourable to him than one which connects him with workers who lived a hundred years later in point of time, and whose work gives lustre to the end of this century and promises still greater results in the next. We most heartily wish the greatest success to this movement. It will be a national discredit hereafter if the noisiness of a group of faddists is allowed to overpower the still small voice of science and of common sense in such matters. What is the use of a nation claiming a JENNER and a LISTER if their work is to be constantly disparaged? Other nations will not be slow to benefit by our stupidity and to do that honour to our great men which is denied to them in their own country.

Whether the hopes of Lord LISTER and his colleagues are realised or not the importance of the meeting of Wednesday remains. The speech of Lord HERSCHELL, who spoke as President of the Royal Commission on Vaccination, must set for ever at rest the question of the efficacy of public vaccination. His was emphatically the speech of the occasion, and was delivered with so much clearness of language and so much force of conviction as to leave all gainsayers without any possible credit. He explained with what entire want of prejudice he went into the inquiry, with the determination to accept whatever results the evidence yielded. In the end, to use his own language, he "was surprised at the force of the evidence in favour of vaccination." The force of this evidence has been felt by medical men for generations, during which time they have ministered with practically absolute immunity in successive epidemics of small-pox. But it is something new to have it expressed so forcibly by an ex-Lord Chancellor, who, as Professor MICHAEL FOSTER said, has heard more of the evidence against vaccination than any living man, and who is exceptionally capable of weighing the value of it. Lord HERSCHELL gave a few illustrations of the sort of evidence that had so surprised him, showing the consistent and uniform relation between the prevalence of effective vaccination in a community and its protection from small-pox and the unerring punishment of those communities that neglect it. There was evidently only one thing that impressed him as much as the evidence in favour of vaccination, and that was the mental condition of those who resist it. It was a veritable wonder to him, hardly to be explained even by the hardening effect of prejudice on a certain class of minds.

Lord HERSCHELL not only lifted vaccination above all question and quarrel, but he defended the methods of JENNER as scientific above the measure of his time, in which view he was supported by both Lord LISTER and Professor MICHAEL FOSTER. One of the most effective parts of Lord LISTER'S speech was his tribute to workers like M. HAFFKINE in plague-stricken communities, who, at the risk of their lives, are developing antitoxins which are found to confer a measure of security upon those exposed or already affected. After such an exposition of the achievements of JENNER and his successors it is high time for their detractors to be silent, and for statesmen, municipal and Imperial, to ignore such detraction; and it is for the public to do high honour to the heroes who wage battle with an enemy more terrible and more destructive than war.

THE interesting account which we published last week as to the sanitary conditions under which the city of Bombay has now acquired a reputation for plague, in addition to that which has so long attached to it in so far as cholera is concerned, raises certain questions which are of very grave importance. In England we can at least claim that, even if infectious disease in our midst should constitute a danger to other countries as well as to ourselves, we have during a considerable number of years done our best towards the removal from the midst of our populations of those conditions which are now universally recognised as tending to the increase and spread of dangerous infectious disorders. As regards British India, we have often been told that, scattered as so much of the population is in villages over an immense area, there are difficulties to contend with which we in this country cannot appreciate. We have also been told that the tank system of water-supply and the conditions surrounding the native hut were of a sort that made reform almost impossible, and that questions of religious observances also stood in the way of the changes that were needed in the interests of public health. But we must confess that we were not prepared to learn the extent of utter neglect of the elements of sanitary

administration which prevails in some of the great cities of British India, even if the remark does not apply to all. The story of the conditions under which plague has made its home—for a time at least—in Bombay comes to us from two sources, both trustworthy, and both resembling each other in the dark picture which they draw. We have already referred to the special article from a correspondent in Bombay. He tells us that in this great centre of commerce and business many of the streets are very narrow and crooked; that in these quarters the houses have been built six storeys high; that the density of population per acre reaches a figure unequalled anywhere in the world; that overcrowding abounds, and that no active measures have been taken to prevent it; that even domestic servants rarely receive any training in sanitary habits from their employers; that well-nigh every sanitary precaution is neglected; that at night the people throw every form of filth into the narrow streets; and that, in short, a large portion of the population constitutes, by reason of habits which are not only tolerated but apparently assented to by those in authority, a constant and standing element of danger.

The confirmation of this accusation against those in authority in the city comes from the highest possible source. As is well known, our correspondent who was in Venice during the sittings of the International Sanitary Conference sent us from time to time an account of its proceedings. One point was, however, not referred to—namely, the statement made by Surgeon-Major-General CLEGHORN to the delegates assembled there on his arrival from India. We shall have opportunities hereafter of reverting to much in that statement of which we may feel proud as to the preventive action taken when it was clearly seen that no half-measures were of any use. But for the moment we would recall the fact that when the Director-General of the Indian Medical Department gave a description of those parts of the city of Bombay in which plague was then and still is epidemic his statement fairly astounded a number of delegates, who were under the mistaken impression that under British rule there was always sanitary progress. Our correspondent was informed that a special debate on this statement as to Bombay would take place, and hence we awaited the debate before entering into the subject. For some reason or other the debate did not take place, or, if it did, no intimation as to it was allowed to leave the precincts of the Venetian Royal Palace. But we feel bound now to state that Surgeon-Major-General CLEGHORN'S description of the conditions of life in the native quarter of Bombay surpassed anything which our correspondent has embodied in his report; indeed, anything more appalling than the story of vast aggregations of human life in six- and seven-storeyed buildings run up in narrow streets, made foul with ordure and every conceivable filth, is only to be surpassed by the description given of the interior of these vast dwellings, where narrow passages, into which filth is also cast, are apparently at times lined on either side with living rooms without so much as a window. Indeed, as some delegates remarked when the facts were first announced, it would seem as if Bombay had done its best to secure for cholera a permanent tenancy, and also to prepare the way for plague or any other filth disease that it could manage to attract.

The circumstance, too, which causes most astonishment is that we are not here dealing with huts erected by natives or by a bygone generation, but with the arrangements inaugurated by a system of modern "civilisation," if we may so far prostitute the word, in connexion with a modern system of factories and cotton mills, the labourers in which have been housed in these dreadful rookeries. "The city," writes our correspondent, "was built before the existence of municipal influences." We do not understand how far this mends matters, for we have heard complaint that the grant of local self-government under municipalities was a great mistake in India. Whether this be so or not, the subject is one which it is not our province to discuss; but it is certain that some modern authority was responsible for allowing the present state of affairs to grow up in the native quarters of Bombay, and that some existing authority is responsible for allowing things to remain in the condition in which they now are. Our object is to urge that the responsible authority—be it central, provincial, or municipal—should not be any longer allowed either to permit streets to be laid out and tenement houses to be built as they have been in Bombay, or to allow conditions to remain which are a standing menace, not only to the city of Bombay, but to British India, and, through her ports, to the civilised world, and especially to Europe. Plague tends to die out in summer and to recrudesce in the following winter. If Bombay wants to prevent its recrudescence within the municipal boundary next winter, much more will have to be done than merely to control the disease in its existing haunts; those localities which time and neglect have allowed to grow up in such a way as to form a soil favourable to the disease will have to be dealt with in an energetic manner both in Bombay and elsewhere in India.

IN view of the steady increase in the number of insane persons coming under official cognisance, and the consequent feeling of alarm arising in the public mind, the Commissioners in Lunacy have deemed it judicious to issue a special report dealing with the subject. In 1859 the number of lunatics, idiots, and persons of unsound mind in England and Wales reported to the Lunacy Department was 36,762; in 1896 the number had risen to 94,446, showing a ratio to every 10,000 of the population of 31·38, as compared with 18·67 at the previous period. Both from a fiscal and social point of view these figures cannot but excite a feeling of apprehension, and the question naturally arises, To what is this enormous increase to be attributed? Is it due to a mere multiplication of numbers, or is it owing to a true increase of the disease itself? There is a prevalent idea, which has found frequent expression, that the apparent growth of mental instability in our midst is more or less connected with the conditions of modern life, its hurry and restless movement, its keen competition and struggle, its excitement and strain; and the Commissioners in the pursuit of their inquiries felt impelled to keep this argument steadily in view, although they state that previous

similar investigations did not afford confirmatory evidence on the point.

In order to make their inquiry as comprehensive as possible the Commissioners at the outset addressed a circular letter to the superintendents of all the county and borough asylums of England and Wales, asking their views in regard to the alleged increase of insanity, and requesting those of them who were of opinion that such an increase had taken place to specify the facts and figures on which their opinion was based and the apparent causes of the tendency. Of sixty-two superintendents and others from whom replies were received, ten were of opinion that occurring insanity had increased to a greater or less degree (one superintendent attributes the increase in his district during recent years largely to the after effects of influenza, and it is important to note that in the last report of the Edinburgh Asylum Dr. CLOUSTON laid much stress on this disease as a factor in the production of mental illness). On the other hand, thirty superintendents stated that there was no increase, whilst twenty-two were unable to arrive at any definite conclusion upon the subject. In some instances no very clear distinction was drawn between the increase of insane persons, as to which there can be no dispute, and an actual increase of insanity disproportionate to that of the population, respecting which there is a wide difference of opinion. The Commissioners have, however, drawn their own deductions from the information supplied to them and at their command. The statistical tables appended to the report clearly demonstrate that the increase of insanity has been almost wholly confined to the pauper class, the ratio having risen from 15·95 in 1859 to 28·44 in 1896 per 10,000 of the population. The ratio of private patients during the same period has only risen from 2·38 to 2·69. From this latter fact the Commissioners assume that the insanity-producing causes already referred to are not so potent as is generally supposed, because the private patients, upon whom those causes would have been most likely to operate severely, have scarcely suffered in any degree. It is open to doubt whether this conclusion is entirely justified, for it must be remembered that the assumption is based solely on the official figures, and no cognisance is taken of the reserve of this class of cases, which must necessarily be large, and is probably not so likely to be absorbed as the pauper class. The statistics indicate that the ratio of pauper lunatics to the total population is steadily increasing; but this method of calculation is not altogether reliable, for it has been shown by the Commissioners themselves, in their last annual report, that the ratio of pauper insane to the total pauper opulation has remained almost stationary during the last five years. The ratio of pauper insane to paupers of all classes gives the fairest estimate of the fluctuations of insanity in the country, and the latest returns show that the increase has been but slight during recent years. There can be no doubt that the increase of the pauper population in lunatic asylums has been due to causes foreign to an actual increase of the disease itself. The working classes are showing an enhanced appreciation of the benefits to be derived from the treatment of nervous ailments in these establishments, and they are more ready than formerly to send their relatives who have broken down from old age or other causes. The reports of the various superintendents are almost unanimous on this point.

The four-shilling grant now made towards the maintenance of pauper lunatics in asylums, and its loss on their removal to the workhouse, has no doubt largely influenced the action of boards of guardians; consequently there has been a steady diminution in the ratio of lunatics in workhouses or resident with relatives or others. Other causes at work are the re-distribution of cases already registered, but not yet classed as cases of first or occurring insanity, and the influx of cases that follows the provision of extended asylum accommodation everywhere. There is in the community a reserve of cases of insanity from which may be drawn a constant supply of new cases to be registered as suffering from first attacks on admission; a proportion of these find their way into prison for petty crime and are there certified. The difference between the Census returns and those of the Lunacy Commissioners was in 1871 equal to 17·7 per cent.; in 1881 it had fallen to 13·5 per cent.; and in 1891 it had sunk to 10·8 per cent. It is therefore obvious that a process of steady absorption of the unregistered reserve of lunatics in the country is going on, which will in a measure account for the ever increasing numbers coming under the official cognisance of the central department. The Commissioners also point out that while in the general population there has been a considerable increase in the number of persons at those ages when the greatest liability to attacks of insanity is known to prevail—viz., from twenty to forty-five—there has been a marked diminution in the ratios among the insane at those ages. This also goes to prove that accumulation, especially of old cases, and not fresh production, has been the most influential factor. In addition to the causes already mentioned, the Commissioners in their general conclusions enumerate greater accuracy of registration; extended views as to what constitutes insanity requiring confinement; the greater density of population in the large towns and the decrease of home industries, making it less and less possible to retain at home persons suffering from even the less severe forms of insanity; and the increased treatment in asylums of temporary attacks of alcoholic insanity. The report, on the whole, is distinctly re-assuring, and the Commissioners are to be congratulated on an effective piece of work. With the gradual absorption of the unregistered reserve within the official fold it is to be hoped that there will be a diminution in the yearly increase of numbers chronicled in each successive Blue-book. Such a result is devoutly to be wished for, not only to allay the natural anxiety in the public mind, but to reduce the growing burden which bears heavily on the public purse.

THERE is a very excellent publication commonly called the "Royal Red Book," issued by Messrs. WEBSTER of Piccadilly, and according to a circular recently sent out it has been suggested to that firm that a list of physicians and surgeons practising specially should be published in their "Royal Red Book," as such a list is in no

other work of reference and is greatly required by the public. Messrs. WEBSTER cannot, however, undertake to publish this list unless the additional matter is likely to pay for itself. So far, then, we have a purely commercial statement to which no objection can be taken. Messrs. WEBSTER may think that an addition of this kind will enhance the attractions of the "Royal Red Book." It may be a challenge to the new publication, "Who's Who?" and we cannot be surprised that they count the cost before entering upon this departure. But Messrs. WEBSTER'S circular continues: "We therefore propose to offer the publication of this information against the names in the Street List, the Alphabetical List, and the Special List (under the names of the diseases) of such as may desire it and are willing to subscribe to the book in accordance with the enclosed order. The sum mentioned will cover the insertion in both the editions of the year and a copy of one edition only." The sum mentioned is a guinea, and for this the name of the physician or surgeon practising specially can be inserted.

We do not fancy, judging by the numerous letters we have received from various members of the profession to whom the circular has been sent, that Messrs. WEBSTER will get many, or, indeed, any, favourable answers; nor can we understand how they could have even thought that the members of the medical profession would assist in the compilation of such a list. At all events, we have received copies of the circulars accompanied by damnatory letters from the leading members of every branch of the profession. After all, the fault lies with the public, who seem to think that the science of medicine nowadays is as it used to be in ancient Egypt, where, according to HERODOTUS, as rendered by an old translator, "Physicke is so studyed and practised with them that euery disease hath his seuerall phisition, who stryueth to excell in healing that one disease, and not to be expert in curing many: where of it commeth that euery corner is full of Physitions. Some for the eyes, other for the head, many for the teeth, not a few for the stomacke and belly. Finally such as are of knowledge to deale with secret and priuy infirmities." No doubt the average patient would like to have a list carefully drawn up of "throat doctors" and "liver specialists" as he calls them, but the public ought to know better. It is perhaps to be regretted from one point of view that Messrs. WEBSTER'S proposition cannot be accepted, not only by the medical profession, but also by the sister callings of divinity and law, for the "Royal Red Book" would then become as interesting a work as a modern romance. We should then have as typical entries:—"The Rev. ——, specialist in domestic troubles; advice given as to the best way of getting on with a large family of unmarried daughters"; or "Mr. ——, specialist in criminal trials; special attention given to burglars and highway robbers, with or without violence." But, seriously, the descent to Avernus is all too easy, and the transition from the heights of the "Royal Red Book" to the depths of the gilded car and brass band might come about, if a protest were not entered against the possibilities of such methods of advertisement as Messrs. WEBSTER have—we feel sure unwittingly—offered to the profession. Human nature is weak.

Annotations.

"Ne quid nimis."

AN INTERESTING CEREMONY.

ON Monday afternoon last, at the Royal College of Surgeons of England, a portrait of Lord Lister from Mr. Ouless's brush was formally presented to the College on behalf of the subscribers. Mr. Davies-Colley, in making the presentation, drew an eloquent picture of the effects of the use of antiseptics upon hospital practice, upon the mortality after severe wounds, and upon surgical science and procedure generally, and congratulated Lord Lister upon the double recognition of the value of his work shown by his election to the Presidency of the Royal Society and his elevation to the House of Lords. The picture having been unveiled, Sir William MacCormac, the President of the College, accepted the gift on behalf of that body, expressing the great satisfaction that it was to the Fellows and Members to hang within their walls this portrait of one who had done so much to advance scientific surgery. Lord Lister expressed his sense of the honour that the College had done him in accepting his portrait in terms of equal modesty and felicity. In reference to his peerage he said that, while he was duly sensible of the distinction that Her Majesty had been graciously pleased to confer upon him, he was glad to remember that the movement which had resulted in Mr. Ouless's picture had been set going before that distinction had been thought of, so that the portrait must be regarded as a tribute to the truth and importance of antiseptic principles. Lord Lister then quoted from a pamphlet which had been sent him by Dr. Coley of New York, in which it was stated that in 360 operations for the radical cure of hernia undertaken with antiseptic precautions only one death had occurred, that death apparently not being due to the operation. Such results, he considered, "must cause gladness in the heart of any man who loves his fellow men."

MEDICAL MEN AS EXPERT WITNESSES.

THE Society of Medical Jurisprudence in America has taken into consideration the existing methods with regard to medical expert testimony, and the New York Academy of Medicine has passed a resolution empowering the president to appoint a committee to investigate the subject of medical expert testimony as now given in courts of justice and to make such recommendations as might seem appropriate. This matter of medical evidence is exciting much interest amongst professional circles in the States at the present time and is arousing much partisan feeling. Some of the opponents of the system go so far as to say that under the existing *régime* trials both criminal and otherwise are rapidly becoming mere farces in which the lawyer, his hired expert, and the criminal or plaintiff play the leading parts. In America the medical man is much more frequently called as a witness than in England both in criminal trials and civil actions, and many practitioners regard this giving evidence as one of the most lucrative branches of their calling. The reasons for this condition of affairs are, so far as civil actions are concerned, that railway and street-car accidents are appallingly common. The railway accidents are chiefly owing to the fact that level crossings, where insufficient precautions are taken to prevent mishaps, are in existence in very many of the large towns. The street-car accidents are due to the rate of speed at which these cars travel through crowded streets (this remark applies particularly to New York). When an

individual is maimed by one of these means an action for damages is invariably brought against the company controlling the line, unless the injuries were incurred too clearly through the sufferer's own fault. If the injured person be in poor circumstances a medical man is first consulted, who, if he considers that there will be a good chance of mulcting the company in substantial damages, recommends the patient to apply to a lawyer. An action for damages to a large amount is brought against the company, the lawyer stipulating that if the case be brought to a successful issue he shall receive half the amount, the medical man taking a proportionately large fee. In criminal cases the lawyer and medical man work together in a similar way. It is contended by the opponents of the system that under such circumstances the evidence of the medical expert is too often biased, and that he is inclined naturally to conceal that part of the truth which might bear unfavourably upon his side of the case. This state of things, for obvious reasons, is impossible in England; but on one point perhaps a salutary lesson as regards the giving of medical evidence might be learned from America. Conflicting evidence is almost unknown in the States, and medical men work together for the most part harmoniously.

"BUBONIC PLAGUE IN BOMBAY."

UNDER this title a paper was read by Dr. A. G. Viegas at the meeting of the Grant College Medical Society on Nov. 24th, 1896. After referring to some points of resemblance and of difference between the disease as observed in Bombay and other places, the writer considered very fully the means by which the disease may have been imported from other districts. Sugar and dates have been blamed as a means by which the plague was imported, but if this had been the case it is strange that the infection had never come from Bagdad and Bassora before and also that several districts in which the inhabitants had consumed these articles of diet remained perfectly free. Again, it is said that possibly the clothes of the sick or the dead from the plague in China might have been brought over to Bombay tied up in a bundle, but Dr. Viegas had not been able to elicit anything that might lend any support to this supposition. It has also been said that rats sick from the plague came by steamers from Hong-Kong, that the Hong-Kong rats gave the plague to the rats in and about the docks in Bombay, and that the fouling of the grain by the plague-stricken rats communicated the disease to the people who had the handling of the grain. Here, again, other facts, such as the time of the year, did not lend support to this theory. Then it is said that the disease was due more to poisoned grain than anything else; but even those who were biased in favour of this theory on repeated inspections of the grain "go-downs" failed to find any poisoned or unwholesome grain that might support this theory. Another widely spread supposition was that the grain storage in the Port Trust Estate was chiefly responsible for the outbreak. Dr. Viegas's own views on the subject are that the disease was due to the accumulated filth in the sewers of the Port Trust Estate—accumulation of putrefying matters in these drains. These drains are choked with dirt, especially organic dirt, such as fæcal matter, decomposing urine, &c., in large quantities—the untouched accumulations of nearly a quarter of a century. Dr. Viegas adds, however, that the most patient and persevering inquiries have not resulted in enabling him to make the remotest or vaguest guess as to the importation of the plague. He believes that if the Port Trust Estate had been sanitary it could never have got a foothold there, and he believes that the plague bacillus, if it had not been existing latent there, must have been brought more than once to Bombay, but could not flourish for want of suitable soil. Last year the insanitary condition of the Port Trust Estate drains reached, so to say, a climax, and afforded a suitable nidus for the growth of the plague bacillus. The meteorological conditions are then fully considered; the social position, sex, and age of those attacked; then the channels of entrance of the bacillus into the human system, its contagion and incubation. Next a full account of the symptoms is given, all forming extremely interesting and instructive reading, but we have not space to enter more fully on these points here. The mortality was very high. During the first four weeks of the outbreak it ranged between 95 and 99 per cent., but later it was between 85 and 90 per cent. Ordinary treatment was unsatisfactory; but should it prove a fact that Dr. Yersin's plague serum is an effective antidote to the poison a much more hopeful view may be taken. Prophylactic treatment by isolation, disinfection of excreta and clothing, and suitable disposal of the dead is, of course, of the utmost importance.

A DIAMOND JUBILEE STAMP.

MUCH consideration has been given to the problem of how to place it within the means of everybody in London to contribute to the form of commemoration for London approved by the Queen as embodied in the Prince of Wales's Hospital Fund. As the easiest and readiest way of enabling people of all classes with the minimum of trouble to subscribe to the Hospital Fund the Prince of Wales has approved a design for two stamps of the face value of 1*s.* and 2*s.* 6*d.* respectively, which has been prepared by the Government contractors, Messrs. De la Rue and Co., who have kindly given the blocks and drawings free of charge. The wholesale distribution of these stamps has been undertaken by Messrs. Simpkin, Marshall, Hamilton, Kent, and Co., Limited, of Stationers' Hall-court, E.C. The stamps will be ready after Easter, when full particulars will be published. The issue will be strictly limited in number and no re-issue will be made. The stamps may be procured through any bookseller, newsagent, stationer, or stamp-seller. The design of the stamps is artistic and beautiful, and, apart from their popularity with the smaller subscribers to the Prince of Wales's Hospital Fund, they are calculated to excite great interest amongst philatelists, of whose society H.R.H. the Duke of York is the President.

THE ROYAL COLLEGE OF PHYSICIANS OF LONDON AND THE HEALTH OF THE ARMY.

WE would call attention to the report of the Committee of the Royal College of Physicians on this subject (vide page 980). Any representation from so important and independent a body on such a question cannot fail to carry weight with the public and the Government, and it will be seen that the College speaks with no uncertain sound. Not only have the members of the Committee made themselves acquainted with the subject by a reference to a number of official and other reports and publications, but the President of the College and some of their number proceeded to Netley and personally inspected the sufferers now under treatment for syphilitic disease in that institution and ascertained for themselves the nature and type of their maladies. Almost every variety of constitutional syphilitic disease was, we are told, represented, those of a virulent form being very numerous and the results in many cases deplorable. The large majority of these patients had come from India; and it is difficult, the report says, to describe the painful impression made by the inspection of these sick soldiers. The College is emphatically of opinion that the amount of syphilis among the European troops serving in India has enormously increased of late years, that it is a matter of serious moment calling for the gravest consideration, and that some efficient means of dealing

with it should, if possible, be devised and applied. The report is a very weighty and well considered one, and the recommendations and suggestions contained in it will, we believe, commend themselves to all who approach and consider the subject impartially. It is, as we have said, no party question, but concerns men of all parties on the grounds alike of humanity to the sufferers of both sexes, State policy, and the well-being of society. The present state of things in India is, it must be admitted, very lamentable, and we trust that the action of the College will serve to strengthen the hands of the Government in any steps they may propose to take in regard to it. The recommendations of the College have the merit of being reasonable, practical, and moderate, and such as most people will regard as indispensable precautionary measures, if we are to make any successful attempt to cope with the evil in question. We entirely concur in the opinion of the College that power should be given to the Government of India to take such steps for its mitigation as they may be advised by those best acquainted with all the social and local conditions of that country.

"NATURE POETRY."

MR. W. J. C. MILLER, the Registrar of the General Medical Council, has reprinted a delightful little essay, originally contributed to *Nature Notes*, on "Nature Poetry." At this time of the year, when fickle Spring displays her caprice, it is pleasant to read such extracts from our sweet singers as the inimitable couplet of Tennyson, describing the song of the thrush:—

> "Summer is coming, summer is coming, I know it, I know it, I know it;
> Light again, leaf again, life again, love again, yes, my wild little poet."

But the essay is more than a series of extracts, it is a masterly appreciation of the spirit in which the poets of Nature have sat at the feet of "the dear old nurse" to turn over the pages of her story-book and listen to the tales she had to tell them. Although we may not know the exact *modus operandi*, it is quite certain that the mind plays an important *rôle* in the conservation of the body, and when the latter threatens to be overwrought by care and worry, and it is impossible or inconvenient from

> "Smoke and turmoil fly
> To seek a purer air and brighter sky,"

the mere reading about the pleasant sights and sounds of the country cannot but have a beneficial influence.

TREATMENT OF ECTOPIC PREGNANCY BY VAGINAL PUNCTURE.

DR. KELLY has recently brought this method before the Johns Hopkins Hospital Medical Society.[1] His practice had always been whenever extra-uterine pregnancy was recognised, whether ruptured or unruptured, to perform laparotomy at once. Having a patient who was too weak for this treatment, he punctured the vaginal vault with scissors and cleaned out the clots. Recovery followed. In another case, having performed laparotomy, he found the intestinal adhesions so intimate with the sac and so well walled off that he determined to make a vaginal puncture. Having introduced his finger within the abdominal incision to guard against encroachment on the abdominal cavity, he made a free opening into the vaginal vault, through which the wound was drained. This patient also recovered. He has now records of ten cases, in all of which convalescence was rapid and smooth and without marked suppuration. He regards the operation as especially satisfactory in that the patient has simply been relieved of the abnormal products without losing any normal pelvic structures. He now operates as follows. After an accurate diagnosis, outlining the sac and its relations by abdominal and rectal palpation, and after careful vaginal palpation to determine the proximity of the sac to the upper vaginal wall, a point is located behind the cervix in the vaginal fornix close to the sac and a pair of sharp scissors are plunged upwards in the direction of the pelvic axis. The scissors are then opened, and some of the fluid blood usually trickles out at once. Larger scissors are then introduced if necessary and the opening widened by withdrawing them with the blades open. It is important to have a large opening both for the purpose of getting two fingers in to clean out the sac and for good drainage afterwards. The sac must be delicately cleaned out and everything brought away down to the shell of the sac and surrounding adhesions. In one case he brought out a well-defined Fallopian tube cast. Irrigation follows, after which the sac is plugged with gauze, which is left in for several days or longer, and then the wound is washed out daily until it closes. There is one danger to which the patients are liable—hæmorrhage from the degenerated villi. His practical experience has shown that this is not imminent. In nine cases there was no hæmorrhage of any moment after cleaning out the sac. In one, however, it was so active that he had to open the abdomen and extirpate the sac. Anyone, therefore, who undertakes vaginal puncture must be prepared to perform laparotomy. Another danger is that the sac may rupture into the abdominal cavity, as the walls are quite thin in some cases. This has not occurred in any of his cases, but in one the douche nozzle was thrust through the sac into the abdominal cavity and a couple of quarts of boric solution introduced. He had to open the abdomen and wash out the solution. The patient made an excellent recovery. He regards his plan as not only an important departure in the treatment of ectopic pregnancy, but also as an index of the line of progress in the general domain of gynæcology. He uniformly treats all pelvic suppurations in the same way where he thinks he can get at the pus and establish good drainage. The present method is, he says, to remove the uterus by the vagina. He always insisted that he could get as good drainage without doing this.

[1] Bulletin, November and December, 1896.

PARISH MORTUARIES.

ON March 25th Dr. Thomas E. Hughes introduced at a meeting of the Wandsworth Vestry an admirable motion, which, we are glad to say, was carried unanimously—namely, that the vestry should advocate the desirability of there being a suitable mortuary and coroner's court erected and maintained in and for the parish of Wandsworth. Dr. Hughes made a powerful and earnest speech in support of his motion, laying special stress upon the need for reverence. "Among the problems of mankind," he said, "not one stands out more prominently than this—how, in a nation, parish, or family, to inculcate the virtues of reverence and self-respect among its different members." The present mortuary of Wandsworth is a miserable hovel about eight feet square; and, putting aside for the present any question of reverence or decency, we must ask, How is it possible to conduct a post-mortem examination either in safety or so as to afford any information in a place of this kind? Reverence is a quality sadly to seek in these democratic days, it went out with the spread of modern education and the baleful doctrine of "I'm as good as you and better." Let anyone notice a funeral passing along the street; not one person in a hundred will take off his hat or show any signs of reverence at all. A mortuary should not be a mere shed; it should be a home for the dead and should be divided into two portions—the mortuary proper, with decent fittings, and a room for post-mortem

examinations. With regard to the second part of Dr. Hughes's motion, a proper coroner's court is a necessity. It is most unseemly that a judge should have to inquire into what is and ought to be considered a most solemn matter—namely, how someone came by his death—in a public-house. The questions coroners have to decide are surely more important than a question involving £100 in money, and yet the latter is adjudicated upon with an amount of legal ceremony quite out of proportion to the matter at issue. We hope Wandsworth will act promptly upon the resolution of its vestry.

INDIAN MEDICAL SERVICE DINNER.

THE officers of H.M.'s Indian Medical Service have resolved to hold an annual departmental dinner in London. We understand that there will be a large gathering of the service at the first dinner, which will be held this year on May 20th at the Café Monico. The chair will be taken by Surgeon-General Sir Joseph Fayrer, Bart., K.C.S.I., F.R.S., and amongst those officers on leave and on the retired list who have intimated their intention of being present are Surgeon-General Sir A. Christison, Bart., Surgeon-General J. M. Cuningham, C.S.I., Q.H.S., Surgeon-Major-General W. R. Rice, C.S.I., Q.H.P., Surgeon-Major-General W. R. Hooper, Sir Guyer Hunter, K.C.M.G., Q.H.S., Deputy Surgeon-General Sir Joseph Ewart, Sir Trevor Lawrence, Bart., Surgeon-Major Sir George Robertson, K.C.S.I., Surgeon-Colonel Roberts, Surgeon-Colonel Costello, and Brigade-Surgeon-Lieutenant-Colonel Keegan. Officers who have not already intimated their intention of joining should do so without delay to the hon. secretary, Mr. P. J. Freyer, 46, Harley-street, W.

THE GREAT LESSONS TAUGHT BY BACTERIOLOGY.

THOSE great processes in nature in which, as modern investigation has shown, bacteria play so important a part were the subject of a very instructive lecture delivered by Dr. Sims Woodhead at the Institution of Civil Engineers on March 18th, when Mr. Wolfe Barry, C.B., F.R.S., occupied the chair. The occasion was an extra meeting of the institution devoted to the hearing of the James Forrest Lecture. Dr. Woodhead began by observing that people are prone to take a somewhat one-sided view of the great facts which investigation brings to light, and that this has never been more forcibly illustrated than in the general way of regarding the work done by bacteria. The tendency is to accept them as the ultimate causes of certain forms of deadly disease and as promoting the evolution of putrefactive products; whereas, as a matter of fact, they are instrumental in keeping the world sweet and clean for its inhabitants and in maintaining a constant circulation of organic matter from the dead condition to the living and from the living to the dead. It is interesting to reflect that without the aid of bacteria the human race would be unable to continue its existence—the animal and vegetable world would long since have perished from sheer inanition or starvation, and the work of the world as a great laboratory would have come to a standstill. Bacteria, as is being found out every day, may be engineered for man's good, so long as they are kept under intelligent control, and once their habits are understood they prove to be the most perfect servants that can be obtained. The lecturer proceeded to trace the history of bacteria and their discovery, and the developments up to the present time which have followed upon a close and exact study of their behaviour. The functions of bacteria in the great natural processes in their bearing upon sanitation were then dwelt upon; and, finally, the recent developments in regard to the wonderful ability of certain species of bacteria to appropriate the nitrogen in the air, through the medium of the soil, for the maintenance and sustenance of leguminous plants formed not the least interesting section of the lecture. It was remarked that so well defined were the results of the researches in this direction that cultivations of these organisms are now made for sale and kept in closed bottles for distribution to all parts of the world. There, when mixed with water and thrown over the soil, they immediately begin to do their work, and taking nitrogen from the air, which lends valuable assistance to that from the soil, they enable the plants, and especially those requiring large quantities of nitrogen for their full growth and development, to grow both more rapidly and more luxuriantly than they could do if unaided by this supplementary store. The relation of bacteria to disease was next touched upon, and the beneficial effects of fresh air and light accounted for by observations on the inhibitory action of these agencies upon such organisms. Dr. Woodhead concluded his lecture with the following words "As yet no one can say that we have reached eve a resting stage, and it behoves all those who desire to see advances made in the treatment and prevention of disease—whether in the department of protection and cure, with which medicine is specially concerned, or in the preventive department, with which civil engineers have to deal—to continue to follow closely every new fact and every fresh theory arising out of new observations in order that bacteria and the forces with which they are endowed may be made our well-disciplined servants, instead of being allowed to waste their energies as our uncontrolled and uncontrollable masters."

THE TREATMENT OF SUNSTROKE BY ICE.

IT is a fact now generally admitted that there comes a stage in the treatment of many diseases when the reduction of temperature in itself is a curative measure of great value. This is more or less true of pyrexia in general, but it is most vitally true of hyperpyrexia. The means employed for this purpose may differ, but the principle which they obey remains unaltered. A series of cases of insolation published in the *New York Medical Journal* of March 6th, by Dr. N. R. Norton, are of value as teaching not only the utility of external cold when applied for this purpose, but also the success which may be expected from energetic treatment even in apparently hopeless cases. It may be remembered that the heat of last summer in New York was for a time such as has hardly ever been equalled. During the six days from Aug. 8th to 13th inclusive 110 cases of heat stroke were in hospital under Dr. Norton's care. Fifty of these patients had high fever, with, in the great majority of cases, severe brain symptoms, seven only being recorded as conscious and two as semiconscious on admission. The average rectal temperature in these was 104·5° F. The remaining forty-one were either delirious or comatose, with an average rectal temperature of 108·5°. The pulse, as usual, was of low tension in all. The treatment consisted in sponging and rubbing with iced water, an iced bath being also used as a rule and continued for periods varying from a few minutes to an hour, till the temperature had fallen several degrees. A further fall, sometimes with general depression, occurred after this, and was followed in most cases, after a varying interval, by a second rise. This was ushered in by fibrillar twitching, becoming convulsive, and was also reduced by the ice treatment. Cold thus applied and aided by friction appeared to act at the outset as a rapid and powerful stimulant. Recovery, when it occurred, was rapid, the patients leaving hospital after an average detention of thirty hours. The total result attained was most favourable in comparison with the high mortality associated with sunstroke, the number of deaths in these

fifty severe cases being only six, or 12 per cent. Necropsies in five fatal cases showed more or less congestion of the lungs, and, as a rule, of the pia mater, sometimes with ecchymosis and softening of the brain or spinal cord. It is noteworthy that the use of alcohol seemed to have exerted a direct and unfavourable influence in predisposing to sunstroke.

THE PROFESSOR OF ANATOMY AT KING'S COLLEGE.

PROFESSOR ALFRED W. HUGHES, of University College, Cardiff, has been appointed Professor of Anatomy in King's College. His four years' occupancy of the anatomical chair at Cardiff, during which time he had the arduous task of organising the anatomical department of the new medical school, and his previous appointment (also held for about four years) as lecturer on anatomy in Edinburgh, have supplied an excellent practical training for the more important position of a metropolitan teacher. His published works afford evidence that he possesses both literary ability and a capacity for original research.

THE TWELFTH INTERNATIONAL MEDICAL CONGRESS.

THE directors of the Caucasian lines of railway have made arrangements for a short tour in the Caucasus for members of the Congress, of which the following are the details. A special train, with accommodation for 100 passengers, will leave Moscow at the close of the Congress for Kislovodsk, in the northern Caucasus, where a stay of two days will be made to enable members to visit the group of mineral watering-places of which this is the centre. From Kislovodsk the train will go to Vladikavkaz, the terminus of this railway. Here there will be a choice of two routes. One party will proceed to Tiflis by the Georgian military road, which passes through some of the most beautiful scenery in the Caucasus. The other party will proceed to Petrofsk, a port on the Caspian Sea. Thence a special steamer will convey them to Baku, where a stay of a day will be made; and they will then proceed by train to Tiflis, where they will rejoin the first party. From Tiflis all will proceed by train to Batoum on the Black Sea, where one day will be allowed to see the town and neighbouring tea and cotton plantations; and from Batoum by steamer to Sukham, New Athos, and Novorossiisk, whence they will return by special train to Moscow. The cost of this circular tour will be only 150 francs (£6). There will be no hotel expenses, as arrangements have been made to enable the travellers to sleep each night either in the train or on board a steamer. The only extra expense will be for meals, which are not included in the fare. The round tour will take just a fortnight. If more than one hundred members of the Congress wish to make the tour a second train will be run.

THROMBOSIS OF THE LEFT VERTEBRAL ARTERY.

IN the *Ricista Clinica* Dr. Giuffré of Palermo has published an interesting case, of which an abstract appears in the last number of the *Neurologisches Centralblatt*. The onset was marked by sudden weakness of all the extremities, especially on the left side, slight left-sided ptosis, paresis of the left frontalis muscle, paralysis of the orbicularis oris on the two sides, slight fibrillary twitching of the tongue, and disturbance of swallowing and phonation. There was interference with the sensibility for pain and for cold on the right half of the body except on the face, and some impairment of taste. Respiration was interfered with and afterwards became of the Cheyne-Stokes variety. Death took place four and a half months after the onset, and at the necropsy there was found thrombosis of the left vertebral artery extending forward into the basilar and backward into the anterior spinal artery and the inferior cerebellar artery. The softening embraced the region of the ninth to the eleventh cranial nerves, including the nucleus ambiguus, a part of the ascending root of the fifth nerve, part of the olive and of the cerebellar tract. There was also a small patch of softening in the region of the auditory nucleus and another in the cerebellar hemisphere. The case is a very interesting one, especially in reference to the sensory condition which was present, a condition similar to that which has been observed in other cases of the same character.

A FRENCH MEDICAL SOCIETY ON CERTAIN ETHICAL QUESTIONS.

DIFFICULT problems in medical ethics are constantly coming before many busy practitioners—questions, too, which often have to be answered categorically on the spur of the moment without any opportunity of consulting a brother practitioner or a legal adviser. It is therefore interesting to see what view others take of their duty in difficult cases. The following questions were propounded recently to a French medical society:—1. A young woman put her illegitimate child out to nurse, and after a time, thinking that it did not thrive as it ought, took it away and gave it into the charge to a second wet nurse, whom it infected with syphilis. The medical man attending the woman informed the mother of this, and she undertook to be responsible for his fees, which she paid for a time—that is to say, until she took the child away; but although the woman required further treatment she refused to pay any further fees for her. The woman consequently asked her medical man (who, it should be stated, had also attended the child) to give her a certificate that she had been infected by the child. The question asked the society was, Should this certificate be refused? The reply was in the negative. 2. A lady sent her maid-servant to a doctor, who found she was suffering from tuberculosis. The question asked was: Should the medical man reveal his diagnosis to the lady when consulted by her as to the possibility of retaining the servant? The majority of the society replied in the negative. It is possible that if this second question had been propounded at a meeting of an English medical society a different answer would have been given, but it must be remembered that in France violation of professional secrecy is a crime, not merely a ground for a civil action as with us.

SELF-GOVERNMENT AND THE PLAGUE.

FREEDOM is said, and rightly so, to be a priceless boon. But we can have too much of any good thing, and never has this somewhat trite saying had more justification than in recent events in Bombay. As early as September last the existence of plague was well known. A system of rigid segregation was drawn up by the Government and the municipality on the advice of a committee of medical men. As a matter of course, however, this pressed hardly upon certain members of the community, and the municipality, in the true spirit of Little Pedlington, withdrew the restrictions. Nor were the Government blameless. Instead of quashing the municipality, they, to quote a writer in the *Times of India*, sat with folded hands. The result was a great increase in the tale of mortality and a distribution of infection far and wide. We are not among those who write and talk about India as if it were England. We are well aware of the many difficulties which beset the government of an Eastern city. Oriental customs, habits, and religions are every one and all opposed to Western ideas, and it is not only a bad policy, but an almost hopeless one, to fight against them in ordinary matters.

But in a matter of life and death, a matter involving the lives and prosperity of thousands, it is the duty of a Government to govern. Supposing there had been a riot, as was feared by the authorities, are what an eminent statesman called the resources of civilisation extinct? Far fewer lives and property would have been lost if segregation had been ruthlessly carried out than has been the case under the system of *laisser faire* which has been adopted. The arrangements for nursing and the hospital accommodation seem to have been grossly inadequate; but recent advices show that the authorities have, if tardily, entered upon a course of energetic measures. They seem now to have remembered what they must have known—that Orientals respect a real Government, and that a little wholesome despotism is sometimes worth pounds of so-called freedom.

THE HEALTH OF THE ARMY.

THE EARL OF ONSLOW, in a communication to the *Times*, has directed attention to a matter to which we have more than once adverted. In spite of the clear and precise statement of Lord George Hamilton, there still exists apparently some misapprehension and confusion in regard to the term "admissions" employed in Army statistical returns. As Lord Onslow explains, the numbers of *admissions* are not identical with the numbers of *men* admitted, because some men are admitted more than once in the year; and he calls attention to the footnote to paragraph 11 of the report of the Departmental Committee in evidence of the fact that this difference has not been overlooked, but expressly referred to. In the case of venereal disease it appears from figures supplied by the principal medical officer in India that the number of men admitted in 1895 was rather more than three-fourths of the number of cases—i.e., admissions. If therefore, adds Lord Onslow, the ratio of admissions to hospital in 1895 be 522 per mille, the total number of men admitted would be about 391 per mille. The report of the Departmental Committee states that in 1895 an average of 45 men per 1000, or 3200 in a force of 71,031 British soldiers in India, were constantly in hospital for venereal disease.

BERI-BERI IN AFRICA.

DR. LASNET, of the French Colonial Service, who acquired his experience while on duty at the Dakar prison in Senegal, Western Africa, has written an interesting report on beri-beri.[1] The total number of prisoners under his observation during the year 1895 was 647, of whom 52 were Europeans, the remainder being natives of the region. The two classes are said to have lived under identical conditions with regard to both food and lodging; but whereas no European or mulatto contracted beri-beri there were 45 cases among the aboriginals, the men in the military division being three times more liable to the disease than their civilian congeners; 149 military prisoners caused 24 admissions during the twelvemonth, but out of 446 civilians only 21 were attacked. Length of residence in the gaol and want of occupation, together with overcrowding, defective ventilation, and utterly inadequate provisions for cleanliness and the removal of filth and ordure were the chief determining causes. Of thirty-two soldiers who had been confined upwards of five months two thirds became affected. The civilian prisoners used to be sent out to work in the vicinity, but the enlisted men claimed exemption from the *corvée* and lay idle all day long wrapped up in their blankets. The affection generally commenced towards the third month of incarceration with malleolar œdema and constipation, attended by depression of spirits, varying from listlessness to profound apathy. When fully established the usual symptoms of the disorder were well marked; non-pitting dropsy, paresis of the lower limbs mainly implicating the extensor muscles, diminished reflex excitability, partial cutaneous anæsthesia, and the characteristic dragging gait. Towards the end unquenchable thirst was a most distressing concomitant, the unfortunate sufferers complaining of a feeling as though fire were consuming their vitals. At no stage, however, were febrile phenomena to be detected, the writer's words on this head being most precise—"not the slightest reaction manifesting itself in fever or by inflammatory developments; in all cases the most complete apyrexia." The only treatment of any permanent efficacy was an entire change of scene. When the disease made its appearance for the first time compulsory exercise was invariably followed by an amelioration of symptoms, but if the patient remained in prison a relapse ending fatally was sooner or later certain to supervene. Taking advantage of an article in the prison regulations, the principal medical officer, Dr. Clarac, recommended the discharge of twelve prisoners suffering from beri-beri in order that their lives might be saved. The proposal, which required Ministerial approval, was duly sanctioned; but before the official intimation reached Dakar three months had elapsed and five out of the twelve patients were dead. The seven survivors were at once set at liberty, and eventually all of them recovered. Dr. Lasnet is of opinion that telluric and meteorological influences have not much to do with the production of beri-beri. The buildings constituting the prison are well exposed to the prevailing winds and stand on ferruginous volcanic soil from two to three metres in depth, beneath which an argillaceous stratum slopes downwards towards the sea, thus rendering all water-logging impossible. He attributes the blame solely to the unhygienic conditions under which the prisoners at Dakar are allowed to live, but the chief determinator of the disease is the lack of suitable employment.

[1] Published in Archives de Médecine Navale et Coloniale, February, 1897.

THE QUEEN'S HOSPITAL, BIRMINGHAM.

THE *Birmingham Gazette* of March 25th contains a notice of the fifty-sixth annual report of the committee of the Queen's Hospital, in which the governors are congratulated on an increase of 120 in the in-patients treated and of 312 in the out-patients. The whole number of in-patients was 2109, that of out-patients 28,120. We cannot join in the congratulations to the governors on the increase of out-patients. One of the best proofs of a well administered hospital must be acknowledged to be a steady and decided annual decrease in the number of out-patients, for two reasons—first, that the treatment of such promiscuous crowds of out-patients is demoralising to all but the poor among them and unjust to subscribers, who do not give their money for such purposes; and secondly, because it hampers and limits the accommodation of the hospital for really urgent cases. A striking and painful illustration of this is given in a leading article in the same number of our contemporary. It refers to an inquest at which the following facts were stated to have been brought out, though we hope there is some mistake or explanation. A cyclist with a fractured skull was taken to the Queen's Hospital, and the house surgeon, acting on a rule, declined the treatment of the case as a bed was not available. This in a hospital with accommodation for treating 28,000 out-patients in a year! We gather that the unfortunate man was sent away to the General Hospital, which, as our contemporary suggests, might have acted in the same way to the dying man. No wonder that our contemporary threatens to reconsider its attitude towards hospitals where such helplessness is possible towards the most urgent cases. The whole system is being jeopardised

apparently in order that committees may boast of ever increasing numbers in their annual report.

A DANGEROUS OCCUPATION AT HOME.

A SHOCKING accident occurred in Halifax last week in connexion with the compounding of varnish with naphtha. It appears that the wife of a boiler "coverer," who for the purposes of his business used a varnish which was prepared at his home, proceeded to get the naphtha from a four-gallon bottle, and after using half a gallon of it she placed the bottle on the floor, when before she could insert the cork the contents of the bottle ignited, and "the flames seemed to go towards the fireplace." She shouted to her children to come out of the house, and then herself ran into the street. Directly afterwards there was a loud explosion, and the room was soon ablaze and the house well in the grip of the flames. Two children, aged respectively six and fifteen years, perished, and the body of one poor boy was found burnt almost to a cinder. The naphtha found in the cellar was examined, and the analyst reported that in applying the flash-point test the thermometer of the official testing apparatus did not reach a low enough temperature to record the point of inflammability. It was proved afterwards that the naphtha actually gave off an inflammable vapour at the freezing point of water. In view of this evidence the explanation of the disaster is simple. At the ordinary temperature of the room in the house the naphtha must have been literally distilling out of the bottle when the cork was removed, and the direction of a draught of air being naturally towards the fireplace the vapour was carried in a stream thither and ignited. Whilst entirely agreeing with the opinion of the jury, that "the manufacture, containing a dangerous compound, ought not to be carried on in a dwelling house," we would add that it is highly desirable that wheresoever such manufacture is carried on it should be done in apartments heated by steam or by hot water apparatus, and not, under any circumstances, in the vicinage of an open fire.

ACCORDING to a telegram which we have received from Bombay the Yersin serum treatment of plague has practically failed. So far the mortality has been 50 per cent. in the selected cases within forty-eight hours of the attack. The hospital mortality is stated to be 60 per cent. in all cases.

A SESSIONAL MEETING of the Sanitary Institute will be held at the Parkes Museum on Wednesday, April 7th, at 8 P.M., when a discussion will be opened by Dr. Henry R. Kenwood, medical officer of health of Stoke Newington, on "Notification of Measles."

DR. LAUDER BRUNTON, F.R.S., has accepted an invitation from the Executive Committee of the International Medical Congress to give one of the general addresses at the forthcoming Congress in Moscow.

A NEW HOSPITAL IN OXFORD-STREET.—A new hospital, which is practically an extension of the Ings House Nurses' Coöperation and Nursing Institution, New Bond-street, was opened on March 22nd by Lady Harris at 180, Oxford-street. Lady Harris, who was accompanied by Lord Harris, Lady Bayley, Mrs. W. B. Gladstone, and others, said that much good work had been done at the Bond-street institution, which has six beds for paying patients; the new premises will accommodate nineteen patients, and will supply a want which is often felt by persons of moderate incomes when overtaken by sickness. At present there is a debt of £300, but it was hoped that in two years the hospital would be self-supporting

The Lancet Special Commission
ON THE
METROPOLITAN WATER-SUPPLY.

VII.[1]

KENT WATERWORKS COMPANY.

History.

THE Kent Waterworks Company possesses the rights of an old-established institution which dates back to the reign of William III. The present Company has also absorbed quite a number of small undertakings which have been started at different times since (Fig. 1). In 1701 letters patent were granted at the request of the inhabitants of Sayes Court[2] and East Greenwich giving to the patentees liberty to break up streets and grounds in those places for the purpose of laying pipes to convey water, and a monopoly was granted for this work, all other persons being prohibited under pains and penalties for a period of 500 years from interfering with the water-supply in these parishes. The result of this privilege was that waterworks were made at Ravensbourne, and these continued to be worked till the year 1808. In the following year an Act was passed incorporating the proprietors of the waterworks, and it was provided that the Company should buy the letters patent which had been granted by William III. and the rights and privileges which belonged to them and the works which were already in existence. The Act of 1809 prohibited the Company from supplying water in such a way as to directly or indirectly affect those rights without the consent in writing of the people concerned or till the old waterworks were bought. Ultimately the patent was bought and "The Company of Proprietors of Kent Waterworks" became under the provision of the Act possessed of all the privileges, authorities, duties, and offices given by the letters patent. The manors of Sayes Court and East Greenwich included the towns of Greenwich, Deptford, and the adjoining districts, and under the Act of 1809 the authorised limits of supply were the two parishes of Deptford and the parishes of Greenwich, Lee, Lewisham, and Rotherhithe. A year before this Act of Incorporation was passed the Town Commissioners of Woolwich had obtained Parliamentary powers to supply the town of Woolwich with water, and in 1810 the commissioners came to an arrangement by which this work should be taken over by the Kent Company should the necessary sanction of Parliament be granted. The Act passed in 1811 authorised this transfer. The area of supply was thus increased to include Woolwich, Plumstead, Charlton, Bermondsey, Peckham, and Peckham-rye, and arrangements were made about the same time that the Company should supply various Government establishments. The Ordnance Department at Woolwich and the Artillery Barracks of the garrison were first supplied, and later contracts were made for the supply of the Royal Arsenal, the Admiralty establishments, the Dockyard at Woolwich, the Royal Observatory, the Royal Naval Hospital, and His Majesty's Dockyard and Victualling Yard at Deptford. As in the case of some other companies, the profits made were for a time chiefly used in the outlay necessarily involved in extending the area of supply.[3]

[1] Nos. I., II., III., IV., V., and VI. were published in THE LANCET of Feb. 20th, 27th, and March 6th, 13th, 20th, and 27th, 1897, respectively.

[2] It may, perhaps, be permissible to leave dull details for a moment to recall the fact that the Royal Manor of Sayes Court is a place of considerable historic interest. It was granted by Charles II. under his great seal to John Evelyn, a second son of the then head of that family—a family which Surrey has, as in the case of the Onslows, attracted from Shropshire. Mr. John Evelyn, "a most ingenious and polite gentleman, well versed in useful learning," is best remembered by the world at large by the diary he left and by his book on trees. The family seat at Wotton, to which he afterwards succeeded, still shows the results of his love of practical gardening. At Sayes Court lived for a time Peter, Czar of Muscovy, generally known as Peter the Great.

[3] The early struggles of the Company are rather plaintively but hopefully referred to in a will of one of the proprietors dated 1815: "I am possessed of ..... shares in the Kent Waterworks. They originally cost £100 each. God knows how they will go on; at all events they will want time to grow. I therefore leave them to ....." The testator left the shares to his "opposite neighbour's" daughters.

FIG. 1.

Map showing the areas supplied by the Company at different dates.

FIG. 2.

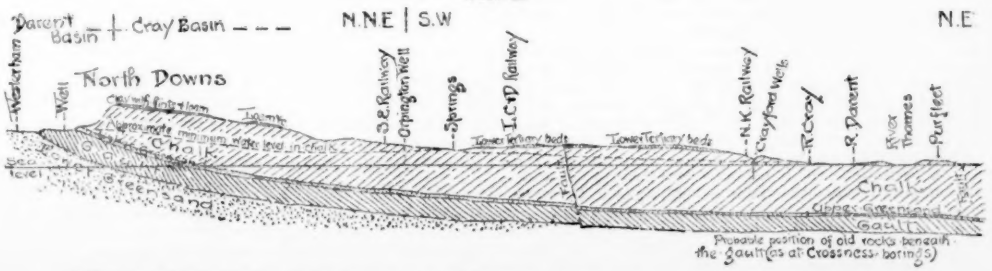


Diagram showing section of geological strata from the North Downs, near Westerham, across the River Thames to Purfleet.

In 1850 and 1852 Acts were passed enabling the Company to increase their capital. About the middle of the present century an establishment called the Plumstead, Woolwich, and Charlton Consumers Pure Water Company was started. A well was constructed, and the necessary plant was put up by the Company, which, however, afterwards became bankrupt, when the plant was bought by the Kent Waterworks Company. In 1860 the North Kent Company was started with an idea of supplying Dartford, Crayford, Bexley, Wickham, Erith, Eltham, Chislehurst, and Bromley. The business of this undertaking was taken over by the Kent Company in 1864, and at the same time fresh capital was raised, and a schedule of water-rates was prescribed. The Company's area now included the places just mentioned. In 1867 the Local Board of Dartford sold their waterworks, which were acquired by the Kent Company, and the Company's area was thus extended to a district having a total area of about sixty-eight square miles. In 1877 the Bromley Rural Sanitary Authority requested the Kent Company to supply their district, and the Dartford Rural Sanitary Authority made a similar request. The result was that the Kent Waterworks Act of 1877 was passed and extended the limit of supply to the following places—viz., Swanscombe, Stone, Darenth, Wilmington, Sutton-at-Hone, Farningham, Eynsford, Foots Cray, North Cray, St. Paul's Cray, St. Mary Cray, Orpington, Farnborough, Chelsfield, Keston, West Wickham and Hayes, and the portion of Beckenham known as Shortlands. The Company's district of supply was thus extended to an area of 120 square miles. In 1885 the Bromley and the Sevenoaks Rural Sanitary Authorities requested the Kent Waterworks Company to supply parts of their districts. The necessary Act of Parliament was obtained in 1888, and the Company's limits of supply were thus extended to an area of about one hundred and seventy-eight square miles, of which about thirty only are within the County of London, the remainder being in the County of Kent. When the Company as at present constituted began their business by taking over the Ravensbourne Waterworks the undertaking was a comparatively small affair.

The works were situated on the banks of the river and consisted of a pump which was worked by a water-wheel. The machinery was designed by Smeaton. The water was distributed through wooden pipes. A few years later a pair of steam-engines were put up by Boulton and Watt, and these engines are still working. Unfiltered water was used till the year 1844, when the first filter bed was made, and in 1850 a subsidence reservoir was constructed, and more filter beds were constructed. The reservoir is still in existence; it is situated to the west of the river, but it has for years been disused as a source of water-supply, and remains as a piece of ornamental water in the garden of the engineer. The water of the Ravensbourne was insufficient to afford a supply, and in 1857 a deep well was sunk in the chalk. An abundant quantity of pure water was found, and from the year 1862 the entire district of the Company has been supplied by well-water. New wells have been sunk as occasion required. All of them are in the chalk, except the one at Westerham, which is in the lower greensand.

Geology of the District.

In the case of the metropolitan water companies of which an account has hitherto been given it will be remembered that, with one exception, the water used by the companies comes either from the River Thames or from the gravel beds near the Thames. The only well which has been referred to is the one at Streatham, which belongs to the Southwark and Vauxhall Waterworks Company. A full description of the strata cut through in making this well has been given in THE LANCET (March 27th, pp. 902-3).

The Kent Waterworks Company derives all the water supplied from deep wells; it is therefore of interest to note the geological character of the district. The company's area is bounded on the north by the River Thames, and to the south it extends beyond the North Downs. A diagram (Fig. 2) shows the arrangement of the geological strata.

At the extreme south Westerham is on the lower greensand, a formation which contains extremely good water, much less hard than the water found in chalk formation. Passing northwards there is next a narrow layer of gault, an almost impervious clay formation; then farther northwards there is a narrow band of upper green sand. Still farther northwards is the range of the North Downs, which run in a direction nearly due east and west, the eastern end running to the sea just south of Deal. In a westerly direction the downs run just to the north of Reigate and Dorking to Guildford, and from the west of Guildford towards Farnham. Near Westerham the crest of the chalk escarpment is generally over 600 ft. above the sea level. The ground falls from the crest sharply to the south; towards the north and the north-east the slope is more gentle. The diagram (Fig. 2) shows the position of two of the chalk wells, at Orpington and Crayford, and the position of the river beds of the Cray, the Darent, and the Thames.

On the North Downs there are patches of clay with flints and loam. These patches are irregularly distributed. From Westerham to Orpington the section shown in the diagram runs in a north-north-easterly direction; from Orpington to Purfleet the section runs in a north-easterly direction. Between Orpington and the line of the London, Chatham, and Dover Railway there are springs. There are patches of lower tertiary beds between this point and Crayford, which is on the chalk.

The depth of the level of water in the chalk varies. For example, at the present time the level of the well at Orpington is about 60 ft. below the surface of the ground. In a dry summer the level has been as low as 90 ft. below the surface. In estimating the water-bearing capacity of a district like that described it is necessary to know not only the area but the amount of rainfall, and it must be borne in mind that to be on the safe side it is necessary to reckon only the percolation which would take place during a dry year. Through a chalk district water finds its way to the sea in different ways. Some of the water rises in springs which break out at the foot of the chalk escarpment; some of it in wet seasons breaks out in streams in the higher levels, but during dry periods these streams do not run at all. Some, again, breaks out in springs in the lower ground. Much water, however, passes in underground channels; through chalk its passage is slow. Some of this underground water passes through fissures and in the lines in which flints occur. It passes also in large amount through faults in the chalk, which are water-bearing channels. It may be remarked in passing that a well which happens to be sunk in the course of one of these faults will afford a bountiful supply; and headings which are made in connexion with the deep wells in the chalk are made more or less in the hope of coming across one of these channels.

The average of the rainfall over the district is estimated to be about 26 in. It is less than this over the lower ground, and at Greenwich is about 24 in., but on the higher levels it rises to 30 in. It is a difficult or impossible matter to determine how much of the rainfall is available for the supply of wells which are constantly pumped. At one time 6 in. a year of the total rainfall was supposed to be the amount which it was likely could be used. Later the estimate was considerably raised, when it was thought that as much as 12 in. might be available. The present amount of water used daily by the Kent Company is estimated at about 16,000,000 gallons. According to some evidence that was given before the last Royal Commission on the Metropolitan Water Supply it was stated that the Company's Parliamentary area would be likely to afford a supply of 30,000,000 to 40,000,000 gallons daily.

(To be continued.)

ANNUAL REPORT FOR 1895 OF THE MEDICAL OFFICER OF HEALTH OF THE ADMINISTRATIVE COUNTY OF LONDON.

SECOND NOTICE.[1]

HAVING dealt with the statistical portion of Mr. Shirley Murphy's report, we have now to consider the remaining portion, which relates mainly to the administrative action of the Central Medical Staff for the Improvement of the Public Health. There is no department of sanitary work in which the London County Council can more usefully engage than in that of directing, and in some cases stimulating, the sanitary operations of the forty-three local authorities which come under its jurisdiction. And there

[1] The first notice appeared in THE LANCET of March 20th, 1897.

is certainly no criterion by which the ability and tact of their medical adviser can be more justly estimated than by the degree of success which from time to time marks his attempts to encourage and develop local sanitary effort. Nor is this part of the county medical officer's duty by any means easy of fulfilment. For, in the first place, the fact must be considered that for a long period the numerous self-governing bodies of the metropolis have, under the title of "vestries," enjoyed practical independence in the execution of their sanitary functions. These bodies are therefore peculiarly averse to what they are prone to regard as outside interference, albeit this may be exercised by a statutory tribunal on which they themselves are duly represented. Again, it must be remembered that for many years past the forty-three vestries have been advised by as many separate medical officers of health, most of whom are men of high professional standing and long experience, who possess the confidence of their respective authorities. For the above-mentioned reasons the necessity will be apparent that the inter-relations of these local officers and the medical staff at Spring gardens should be maintained on both sides with uniform consideration, patience, and good-will, if existing arrangements are to yield the best results. We notice with satisfaction the evidence afforded by Mr. Shirley Murphy's successive reports of the fact that in his own dealings with his numerous colleagues in the sanitary areas of London he has invariably been actuated by this sound principle. In the earlier years of his appointment Mr. Shirley Murphy had to depend on his own exertions exclusively. He possessed neither professional assistants nor staff, and, in fact, was compelled to make a position for himself and to organise a department which should eventually be competent to direct and control the vast sanitary machinery of the metropolis. It was not, therefore, until the year 1892, by which date the nucleus of a preventive department and staff had been provided, that Mr. Shirley Murphy felt justified in publishing his first annual report. Since that period, however, the administrative sanitary work of the council has progressed apace, and each successive report has borne additional evidence of the beneficial influence which the central office has exercised on the local authorities in the direction of sanitary progress.

By the Public Health (London) Act, 1891, it is provided that the London County Council shall pay a moiety of the salary of every metropolitan medical officer of health and sanitary inspector appointed or re-appointed after the passing of that Act. Up to the end of the year 1895 39 medical officers of health and 153 sanitary inspectors had been thus appointed or re-appointed. As the county council is bound to contribute to the remuneration of these officers, it of course follows that, in the first place, that authority and its medical department will possess, under legal sanction, the right of co-ordinating and controlling local sanitary operations; and, in the second place, that the local sanitary officers will be protected from capricious dismissal for fearless discharge of duty. It is greatly to be desired that this wholesome reform should ere long be extended to the large body of urban health officers acting outside the metropolis, many of whom are devoted entirely to the practice of preventive medicine, and perform functions even more onerous than those of any metropolitan officer of health, with the exception of the chief medical officer himself.

In the report before us is given an instructive example of the means by which a well-regulated central department can bring about desirable reforms in local sanitary administration. In the course of the year 1895 communications were addressed by the London County Council to seven metropolitan sanitary authorities calling attention in each case to the inadequacy of the local inspecting staff. One of the districts referred to having demurred to this charge of "making default," an assistant medical officer of the central department was instructed to make an inspection of the district and to report on its sanitary condition and administration. Dr. Hamer, who was selected for this duty, found that the inspecting staff of the district in question was as a matter of fact insufficient, and reported accordingly. This statement having been challenged by the vestry, who urged that the report had been made after insufficient inquiry, Mr. Shirley Murphy made a special communication to the county council on the merits of the case and on Dr. Hamer's local investigation. This communication was eventually forwarded to the Local Government Board. As a result we are informed that the vestry have already increased their staff of inspectors by the appointment of four additional officers. It is worth notice that although, as in the present instance, the action of the county council is wisely limited in the first instance to friendly representations to defaulting sanitary authorities, the council has abundant statutory authority under the Equalisation of Rates Act, 1894, to require compliance with its demands. The Act provides that "if the Local Government Board, under Section 101 of the Public Health (London) Act, are satisfied that the sanitary authority have been guilty of such default as is mentioned in such section, and have made an order limiting a time for the performance of the duty of the authority, the London County Council shall, if directed by the Local Government Board, withhold the whole or any part of the payment of the sum due to such authority" for the equalisation of rates.

Having thus obtained statutory control over the local distribution of funds, the London County Council will for the future have little difficulty in procuring the execution of all necessary works for the protection of the public health. After the manner of its predecessors, Mr. Shirley Murphy's report for 1895 treats in sufficient detail of the progress of local sanitary operations in aid of public health. It deals at length with such important topics as the prevention of trade and other nuisances, the housing of the working classes, the provision of workmen's trains, the regulation of houses let in lodgings, the supervision of the food and water-supply, and the maintenance of hospital and asylum accommodation for the treatment of the infectious sick and of the insane poor. All these subjects are dealt with so as to present under the respective headings a complete summary of existing sanitary conditions in the several sanitary areas. Opportunity is also taken to point out the general lines on which improvements can best be carried out, and copious extracts are appended from the reports of local medical officers of health, showing how far the suggestions of the central department have been attended to.

THE INTERNATIONAL SANITARY CONFERENCE.

OUR special correspondent writes:—The officially authorised report of the proceedings of the Conference will in due course be ready for distribution. It will be issued from Rome. In anticipation I may remark that its most outstanding feature will be the evidence it affords, as compared with its predecessors, of the steady progress made by British views of sanitation in Continental and even Eastern opinion. Difficulties as to their adoption may survive the recognition of their soundness, particularly with Powers like the Sublime Porte, which draws considerable revenue from "pilgrim dues" and other imposts of little or no real hygienic value. But as to the substantial victory scored by British prophylactic medicine, that may be regarded as *un fait accompli* on which civilisation may well congratulate itself.

With the signature of the "International Sanitary Convention" the Conference immediately rose.

Signor Bonin, the President, recapitulating its results, dwelt on the importance of the measures agreed upon as to the chief questions submitted to the Conference.

Thereafter the delegates of Austria-Hungary and France congratulated the Conference on its president, whose sympathetic tact had smoothed the many difficulties inherent in the discussions, and they concluded by begging him to convey to the Venetian public the gratitude of the delegates as a whole for the hospitality vouchsafed to them. The President, after returning thanks, declared the Conference closed.

Those who signed the Convention without reservations were the representatives of Austria-Hungary, Belgium, France, Great Britain, Italy, Luxemburg, Montenegro, the Netherlands, and Roumania.

The "Referendum" was signed by the representatives of Spain, Greece, Persia, Portugal, Servia, and Turkey.

The German representatives signed with reservations certain provisions to be adopted in Europe, as did also the representatives of Switzerland.

The representatives of Denmark, Sweden and Norway, and the United States accepted the Convention *ad*

referendum. They made a formal declaration, inserted in the *procès-verbal*, that their Governments, as far as possible, would apply the provisions established in the Convention before the term fixed for its ratification.

Germany, Austria-Hungary, France, Great Britain, Italy, Luxemburg, Montenegro, the Netherlands, Portugal, Russia, Roumania, and Switzerland, through the representatives of their respective Governments and administrations interested, will have yet to consider and decide upon the following arguments, viz.:—

1. Communication of the Sanitary Convention of Venice to the Sanitary Council of Tangiers in order that there may be taken at Morocco provisions conforming to the rules established by the Convention against the invasion of the pestis bubonica, especially with regard to the temporary inhibition or restriction of pilgrimages.

2. Unification of the prophylactic measures on the part of the authorities at Malta and Gibraltar conformably to the rules of the Venice Convention.

3. Coördination and codification within an approximate time of all the dispositions entered in the Conferences of Venice in 1892, of Dresden in 1893, of Paris in 1894, and of Venice in 1897 against cholera and the pestis bubonica.

To the Convention is appended a general sanitary regulation to prevent the invasion and the diffusion of the pestis. This consists of five clauses.

The regulation starts from the basis that the period of incubation of the disease is at the present stage of science ten days.

The first clause, besides general prescriptions as to the notification of cases of pestis and of the provisions taken, contains:—

1. Rules to be followed in infected ports regarding outgoing vessels and those to be observed during the voyage and at the ports of arrival. Special and most severe regulations are laid down for pilgrim ships, and pecuniary fines are imposed on captains contravening such regulations.

2. Rules to be followed with regard to the place of departure by land or sea from the infected countries and particularly by the Red Sea (Wells of Moses, Suez, passage of the Canal), with special consideration for the Mussulman pilgrims and in view of the sanitary reforms to be effected in the halting places where they are kept under surveillance (Camaran, Abousaad, Vasta, Abouali Gebel, Tor) and by way of the Persian Gulf.

The second clause contains rules to be observed in Europe and to establish reciprocal and continuous information between the Governments as to eventual cases of pestis, the provisions adopted to combat transmission, and the conditions under which the territorial circumscription ought to be considered sound or contaminated. It also determines the necessity of limiting the circumscriptions (province and department) contaminated, and the provisions for combating the invasion of the disease; it enumerates the goods and effects which may convey the germs of the pestis; it establishes provisions to be taken on the terrestrial frontiers, condemning once more the system of quarantine, and admitting as an exception the barring of frontiers. It determines, finally, the provisions to be taken in the zones of frontiers along river sides, canals, and at harbours.

The third clause contains, as a recommendation, instructions as to the method of disinfecting in presence or anticipation of the pestis.

The fourth clause indicates the provisions to be recommended on board ships at the moment of departure, during the voyage, and at the port of arrival.

The fifth clause determines the mode in which surveillance is to be exercised in terms of the rules and provisions proposed by the Sanitary Council of Constantinople, with regard to the Red Sea, the Persian Gulf, at the Turko-Russian and Turko-Persian frontiers, and by the Sanitary Council of Egypt for maritime quarantine.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN extraordinary Comitia of the Royal College of Physicians was held on March 29th, the President, Dr. WILKS, being in the chair. Communications were read from (1) the Secretary of the Royal College of Surgeons of England reporting the proceedings of the Council; (2) the General Medical Council forwarding a report from the Medical Department of the Navy pointing out that three Licentiates of the College at a recent competition showed deficiency in preliminary education; (3) Dr. H. G. Adamson, resigning his membership and returning his diploma; and (4) the Sanitary Institute, inviting the College to send two delegates to the annual congress to be held in Leeds in September next. It was resolved that Dr. Barrs and Dr. Chadwick be invited to act in that capacity.

A communication was read from the Medico-Chirurgical Society of Norwich enclosing a resolution of the society with reference to the medical officers of medical institutes. This was in the form of a memorial to the College, pointing out the urgent necessity of steps being taken in this matter, and stating that the members of the society have declined professional intercourse with those who by accepting offices in such associations had taken on duties derogatory to the profession.—The Beckenham Medical Society also forwarded a resolution declaring the holding of such appointments to be inimical to the best interests of the profession.

The PRESIDENT then submitted to the College the report of the committee appointed on February 23rd of this year to advise the Royal College of Physicians of London on the desirability of making a formal declaration of opinion to the Government in favour of the re-enactment of the Contagious Diseases Acts, or some such modifications of them as may prevent the spread of these contagious diseases.

After referring to the lamentable increase in recent years in the number of soldiers invalided home from India suffering from syphilis, and to the statistical aspect of the matter as revealed in the recent report of the Departmental Committee of the India Office, the committee of the College went on to say that whether syphilis be regarded in relation to the large amount of inefficiency it causes in the British Army and consequent weakening of the military power at the disposal of the Government of India, to its present, and often life-long, effect on the health and constitutions of the individual sufferers and their future wives and children, or in relation to its remoter consequences on the well-being of future generations, it appeared to them to be a matter of serious moment and to call for the gravest consideration. From this last fact it followed that if all reasonable measures to limit the spread of infection were justifiably taken in the case of other contagious or infectious diseases, they were far more necessary in the case of syphilis. About 13,000 soldiers return to England from India every year, and of these in 1894 over 60 per cent. had suffered from some form of venereal disease. These figures were quoted as showing more forcibly than words the risk of contamination to the present population and to future generations.

The report concluded as follows:—

"The far-reaching effects of syphilis are so serious that it is of the first importance that the earliest indications of the disease should be medically treated without any loss of time; neglect of this measure tends to increase its virulence in all its stages.

"As regards the unfortunate women who pursue their calling in a diseased condition, it is simply a matter of humanity to them that they should have the benefit of medical treatment, with rest and care in hospital, until they are cured.

"In view of this lamentable prevalence of disease your committee makes the following

Recommendations and Suggestions:—

That as the civil, military, and medical officers in India are best acquainted with the local conditions now existing, and affecting this prevalence of venereal disease, so they are the best judges of the most efficient means of dealing with it. Your committee therefore suggests that power be given to the Government of India to take such steps for the mitigation of this evil as these officers may advise.

That, for the protection of the healthy population, venereal diseases in both sexes, in the soldiers as well as the women, be subjected to the same restrictions as are other contagious diseases, such restrictions having for their object the detection and prevention of such diseases.

With regard to the unfortunate women, such measures necessarily include examination as well as treatment; and it may be desirable in India that the examination should be performed by persons of their own sex, who have been sufficiently trained and educated for the efficient discharge of this duty.

Syphilis requires prolonged constitutional treatment, during which the sufferers should be under frequent medical supervision, although not necessarily hospital *in*-patients.

Your committee also suggests that no women should be employed as coolies in, or in the immediate vicinity of, the barracks, as there is evidence that such women are frequently the source of aggravated forms of venereal disease.

"In making these recommendations your committee considers that they should apply not only to the women, but also to the men with whom they consort; and is of opinion that it would be highly advantageous if medical officers in the army found some means, by elementary reading-room lectures or otherwise, of acquainting young

and inexperienced soldiers with the grave and far-reaching consequences that are likely to result from immoral conduct, as well as from the concealment of the primary symptoms of the disease, the early treatment of which is of the utmost importance."

Dr. CHURCH (Senior Censor) moved the adoption of the report, and Sir DYCE DUCKWORTH seconded the motion, remarking that it was the business of the medical profession to lead in this matter.—Sir JOSEPH FAYRER urged the necessity of the authorities taking disciplinary measures as well as medical and sanitary precautions, for there was absolutely no reason why these diseases should be so rife in India if proper control were exercised.—Sir W. PRIESTLEY, Dr. PLAYFAIR, and Dr. CHURCH also spoke, the latter mentioning the fact that the trained medical women in India consisted of three classes—the lady doctors, the assistant surgeons, and the hospital assistants, and there was reason to believe that these were sufficiently numerous to undertake the duties suggested to be imposed on them, of course under supervision. The report was adopted by the unanimous vote of the College.

A report from the Council dealing with the memorial addressed to the College at its last meeting by medical practitioners of Norwich was, after some debate, referred back for further consideration.

A report from the Midwives Registration Bill Committee was received and adopted.

Reports were received and adopted from the Committee of Management and the Laboratories Committee.

BUBONIC PLAGUE IN BOMBAY.

IT is reassuring to learn from the Anglo-Indian papers received by the last mail, although the news has been anticipated by telegraphic intelligence, that things have taken a favourable turn and are progressing more satisfactorily. The *Times of India* of March 13th, which publishes full accounts of all the proceedings that are taking place in Bombay in reference to the epidemic, states that there was a considerable diminution in the Bombay mortality returns during the past as compared with the preceding week, the numbers being 1326 and 1484 respectively, and the number of deaths registered from plague had fallen to 590. The health of the city was, in fact, showing considerable signs of improvement and business was beginning to revive.

At Karachi and Poona, on the other hand, where the epidemic was still spreading, drastic measures were being adopted for its suppression. The powers conferred by the Epidemic Diseases Act of 1897 are very considerable and go straight to the point, and the Executive Committee are energetically carrying out, under the orders of Government, measures for the suppression or limitation of the spread of the disease. It has been notified in the *Bombay Gazette Extraordinary* that the Municipal Corporation of the City of Bombay, its officers and servants, and all public servants are to give effect without delay to any measures that may be ordered by the committee, who have also power to requisition the Commissioner of Police to afford such aid as may be necessary to enforce them. Provision is likewise made for the expenses incurred in carrying out these measures. Dr. Yersin, accompanied by M. Pilinsky, the Consul, and Comte de Potier, the Vice-Consul, for France, arrived at Bombay from Poona on the 5th ult., the former bringing with him a large supply (700 tubes) of anti-plague serum, prepared in his laboratory at Nha-Trang, in Annam. Dr. Yersin has set to work very energetically, but it will be seen from the substance of a telegram which we publish in another column that his results in India do not appear to be so successful as those he obtained in China. Meanwhile we glean from the *Times of India* some particulars which may prove of interest to our readers. The Executive Committee in Bombay, under the presidency of General Gatacre, have circulated a note to district medical officers briefly setting forth that Dr. Yersin has been sent by the Institut Pasteur at Paris to repeat on a larger scale the successful experiments previously carried out by him in China; that the inoculations will be conducted free of charge; and that Dr. Yersin puts himself at the disposal of the municipality of Bombay and the public in order that those who desire to do so may try his treatment.

Reference is made to the volumes of the *Annales de l'Institut Pasteur*, which deal with Dr. Yersin's researches regarding plague and the technical preparation of the serum employed by him. The circular note goes on to state that Dr. Yersin has for his aim: 1. To treat with his serum declared cases of plague in order to demonstrate the efficiency of the new medicine. It is necessary for the success of the treatment that the disease should be treated at its commencement. The longer the disease has lasted the more difficult it is to deal with. However, in any case the treatment is innocuous. 2. In houses where plague exists Dr. Yersin can inoculate those who are inclined to try the influence of the preventive serum; he will also inoculate native practitioners and their staffs or any European medical practitioners who apply to him. The injection of the serum is not more painful than a subcutaneous injection of pure water; it causes no uneasiness, fever, or abscess. The patients have not to follow any special treatment or diet. The length of the immunisation acquired by the injection of serum is about a month; after the lapse of this time a fresh injection should be applied for, with the object of renewing the period of immunisation. The serum prepared by Dr. Yersin does not contain any microbe or any poisonous substance; it is therefore absolutely harmless.

M. Haffkine's scientific labours in the same or a similar direction are well known, and he has been indefatigable in his efforts. The work of inspection, systematic and effective segregation, and sanitation is being pushed on steadily in all directions, not only in Bombay, but in Poona, Karachi, and other places. While the more intelligent and educated classes in India—whether Hindus, Mohammedans, or Parsees—have most creditably been doing their best to aid in the good work, it cannot be expected that the natives generally would overcome their fears and caste prejudices and not seek to escape from or evade the regulations by the concealment of their disease; that is quite natural, and such as we know takes place in other countries than India. Still, it is surprising how the natives, of that country are becoming amenable to reason in these respects and conforming to regulations the benefit of which they are gradually recognising. The *Times* correspondent says: "The ignorance and superstition of the lower class of travellers makes the work of the medical officers difficult. One belief is that persons removed to the segregation sheds are given medicines which put an end to them quietly. Hence there are attempts to evade inspection, passengers alighting at roadside stations and journeying on foot past the junctions where the examination is made. The outbreak, which occurred at a village in the Gwalior territory, only ten miles from Jhansi, may be traced to this practice. For six weeks the villagers maintained secrecy about the disease, losing over 50 persons out of a population below 300. When the outbreak was discovered the Gwalior Durbar sent Dr. Crofts, who placed a cordon round the village, removed the inhabitants to a camp, and burnt all the houses there. These measures proved most effectual, only six patients now remaining. A careful examination of the neighbouring villages shows that no single case of plague has occurred there. The epidemic is practically stamped out. The Bengal Government has issued a notification containing rules for dealing with the plague on its first outbreak. In country towns and villages the main principle is the prompt segregation of patients and destruction of infected material. Similar measures are being taken in other provinces. There is no plague in the Bengal Presidency, but these precautionary measures are deemed advisable."

The report that plague had attacked the British troops at Colaba is officially contradicted.

THE BATTLE OF THE CLUBS.

ACCRINGTON.

THERE is—or perhaps we ought to say was, for apparently it has ceased to exist—a "club" at Accrington called the Accrington Medical Dispensary. The club employed a medical officer and seems to have been conducted in a very remarkable and high-handed manner. As far as we can judge from the report of a meeting published in the *Accrington Observer* of March 6th—a very undignified and quarrelsome meeting apparently—the committee or trustees, or, at any rate, the governing body of the club, discharged the medical officer, handed over the care of the members

to the Accrington Medical Society, and sold up the fittings of the surgery and the drugs. We are not surprised; but as we gather from a remark of one of the speakers at the meeting that an action is pending between the medical man and the trustees of the dispensary we shall offer no comments at present. Meanwhile, the Registrar of Friendly Societies has been called in to inquire into the whole matter.

THE WIGAN AND DISTRICT MEDICAL GUILD.

The first annual general meeting of this guild was held on March 11th, Mr. J. B. Stuart being in the chair. The honorary secretary in explaining the movement said that their motto was at present "Defence, not defiance." Such an organisation was absolutely necessary in the interests of the profession. It was practically trades unionism applied to the medical profession. What was now wanted was organisation, not fighting. The reassuring effect of a powerful organisation was needed. He strongly disapproved of little individual fights being waged up and down the country, which by their want of success were apt to frighten the medical men in other districts. It might be magnificent but it was not scientific warfare. It would be an extraordinary thing if a learned profession could not apply to its own necessity the old fable of the bundle of sticks. It would be observed that the rules adopted were practically the same as those of the Manchester Medical Guild. The cause of this was a strong desire that the two guilds should keep closely in touch. He hoped to shortly see similar guilds springing up in all the chief centres of Lancashire, so that a county federation might be formed. He would be only too happy to give all information to those desirous of helping forward the movement.

We are glad to see that Lancashire is aiming at the ideal of coöperation in medical defence. It was undoubtedly much more pleasant for everyone when the personal element could enter into the relations between employer and employed, as in the old days when apprentices lived in their master's house and the employer himself lived over his shop and was not ashamed to call it a shop. Nowadays he calls it an emporium and as a rule knows nothing of his "hands," though to this rule there are noble exceptions. So it is with medical practice. The modern club medical officer is ground down to give his services for a starvation wage, and has no Factory Acts or "unions" to defend him against what is sometimes the very real tyranny of his employers. So he is learning by bitter experience, and he is adopting the methods of his employers—i.e., patients—and, though we fear he will never get an eight hours' day, he will at least attain to "a fair day's wage for a fair day's work." The rules of the Manchester Guild referred to by the secretary of the Wigan society are mainly as follows:—

That the rate of payment should never be less than 4*s.* per member per annum; that the duties of medical officers should be clearly defined and uniform; that a rate of 2*s.* 6*d.* should be charged for the medical examination of every candidate; that a club medical officer should not be debarred from obtaining the usual fees under the Employers' Liability Act and the Lunacy Act; and that women should pay 6*s.* a year. The Council of the Guild also consider that the profession should only recognise those provident associations which enforce a wage limit and which allow no laymen to make profits or accumulate reserve funds out of medical work, or medical men to be controlled by other than medical committees; and, also, that no medical officer should undertake to attend and dispense medicine for more than 1500 patients living within a radius of two miles.

We earnestly hope that the suggestion of the Wigan secretary will be acted upon and a county federation formed, for such an association would be of incalculable value to practitioners of all grades.

After the meeting the following officers were elected:—Chairman: Mr. W. Mitchell Roocroft. Vice-chairman: Mr. C. R. Graham. Honorary secretary: Dr. F. Rees. Honorary treasurer: Dr. M. Benson. Council: Mr. Cooke, Mr. Parker, Dr. Wilson, Mr. Chronnell, Dr. Wolstenholme, Mr. Berry, Mr. Monks, Mr. Brady, Mr. Angior, Mr. Cowan, Dr. Blair, and Dr. J. King.

MEDICAL MEN AND FRIENDLY SOCIETIES.

On March 19th the annual Conference of the Affiliated Friendly Societies of the United Kingdom was held in London, when the question of "medical boycotting," as the determination of medical men not to be robbed was gracefully termed, was discussed. Mr. Lister Stead, of the Ancient Order of Foresters, proposed the following resolution, we learn from the *Sheffield Independent* of March 20th:—

"That this Conference of Friendly Societies records its strong protest against the organised attempts made by medical men to impair the usefulness of the medical aid section of the work of friendly societies, especially to the boycotting directed against medical men in the service of Friendly Societies' Medical Institutes or Associations, and in regard to the restrictions sought to be imposed by medical men as to the class of persons eligible to receive medical benefits through friendly societies; and this Conference instructs its committee to take steps to protect the interests of the societies concerned, and to uphold the right of the societies to admit members free from any restrictions on the part of the medical profession. That copies of this resolution be forwarded to the Medical Council and the editors of THE LANCET and *British Medical Journal*."

According to the *Sheffield Independent* Mr. Stead went on to say that those interested in these matters were beginning to recognise that throughout the United Kingdom efforts were being made to hamper the work of the societies as regarded their medical aid branches. The medical men were now combining to make it as hot as possible for the gentlemen who acted for the Medical Aid Association. His society thought that if the Conference expressed an opinion upon this practice of boycotting it might have the effect of putting a stop to this practice, or, at all events, of mitigating the evils under which they were labouring to-day. As to the attempt of the medical profession to impose a wage limit for members, they would not allow the medical profession to lay down rules under which they should admit members.

We believe that Mr. Stead's resolution was adopted, though it has not been forwarded to us in accordance with its wording. We are glad to learn that Mr. Stead's friends are beginning to find out that the medical profession does not intend to be exploited, and we assure him that no resolutions that he can frame will "have the effect of putting a stop" to action on the part of medical men against organised robbery. We beg again to repeat to the medical profession that on no account should they accept office in clubs where there is no wage limit and where the patients of other medical men are touted for by canvassing.

BECKENHAM AND PENGE MEDICAL SOCIETY AND THE CLUB QUESTION.

At a meeting of the above society, held on March 12th, the following resolution was proposed and unanimously carried:—

"That it is detrimental to the honour of the medical profession that a member should hold any appointment under medical aid societies, because they are speculating companies, increasing their profits by imposing on the medical profession, to whom their success is largely due. This society therefore protests, and pledges itself not to take any such appointment, and it is their earnest hope that their professional brethren will do likewise and so suppress these impositions, which, if encouraged and allowed to continue, must seriously injure the *bonâ-fide* work of the general practitioner amongst the middle and lower classes."

THE RECORDS OF FATALITIES UNDER ANÆSTHETICS.

AMONG the sad deaths under anæsthetics, which nowadays seem so frequent, many are placed to the account of anæsthetic agents without any justice. In pre-anæsthetic days it was no uncommon occurrence for death to take place before the surgeon's knife had commenced its work, nor was it rare for a fatal swoon to terminate abruptly the performance of an operation. The enormous increase in the actual number of times an anæsthetic is given now as compared with ten years ago involves a far larger number of actual deaths, although the same low average of mortality is maintained or even lessened. It is certainly true that there is much to be learned from fatalities; and, although always sad reading, we must submit that no death which occurs under an anæsthetic should be passed over, but carefully noted and published, that it may prove a beacon which may perhaps save others from some unappreciated shoal or rock in the troubled waters of anæsthesia. And in this connexion we would remark that when details are sought for the narratives sometimes fall short. We are told that chloroform was given "in the usual way," regardless of the fact that the usual way for A. is not the method adopted by B. A brief newspaper cutting is sent with the remark "correct as far as it goes." The *petitio principii* is here evident, for what we

need is not the *parvum in multo* but the *multum in parvo*. If our correspondents would critically examine whatever account they send us and give all information in their power about the patient, the anæsthetic, the method of anæsthetising, and the phenomena of anæsthesia, they would do much to assist others—and perhaps render a service to themselves—by a searching examination of the side lights thus thrown upon the occurrence.

DEATHS UNDER CHLOROFORM IN DENTAL OPERATIONS.

We have received from the chloroformist the particulars of the following death under chloroform. The patient, a woman, aged twenty-five years, was in good health and of spare habit. The clothes were loosened, while the patient reclined upon a couch with a view to having several teeth extracted under chloroform. The anæsthetic was administered from a felt cone, a drop-bottle being used. In about five minutes the conjunctival reflex had disappeared. After most of the teeth had been removed the dentist changed the gag to the other side of the mouth. At this time the patient appeared to be doing well. The pupils were moderately contracted. More teeth were removed, with, as we gathered, occasional re-applications of the cone. When this was lifted off the face for the last time the colour appeared to be natural, but the chloroformist says that he could not see the chest. When the last tooth was removed the lips were seen to be pallid and respiratory movements had ceased. Careful measures to effect resuscitation failed. The necropsy revealed that the right heart was empty, and the left full; all other organs were normal. Two drachms of chloroform were used. That anæsthetic was only selected in place of ether at the last moment, but why this change was made we are not informed.

A similar occurrence is reported. In this case the patient (again a female) was aged thirty-two years; the administrator was a surgeon and the family attendant of the patient. Chloroform was given from lint. The patient succumbed as the operation was finished; respiration was observed to fail. The necropsy showed a distended stomach and "weak heart"—whatever that may signify. It would be interesting to know why chloroform was employed in these cases, as experience has shown that fatalities are peculiarly liable to follow the use of chloroform in dental operations. That shock is peculiarly prone to take effect in such cases is generally believed, but it is more likely that in the chloroformist's desire to ensure a prolonged and complete anæsthesia the anæsthetic is usually pushed to a dangerous degree. Commonly the very act of removing teeth causes obstruction to respiration, either from pushing back of the tongue or pressure upon the mandible. Whether death results from an excessive or an insufficient quantity of chloroform really matters very little, but what is of the last importance is that death be avoided by giving the patient nitrous oxide gas on several occasions or, if this is impossible, by having recourse to a full anæsthesia by means of nitrous oxide and ether. It should be noted that in the cases given above in one instance a closed cone and in the other lint was used. A death under nitrous oxide and ether has been recently reported, but at present we have not received sufficient information to enable us to do more than notice this unusual and deplorable mishap.

DEATHS UNDER ANÆSTHETICS IN OTHER OPERATIONS.

A death occurred in Liverpool under chloroform. The patient, aged twenty-two years, an inmate of the workhouse infirmary, was placed under chloroform, and before the operation was commenced his condition became so grave that the administration was stopped and artificial respiration commenced. This brought him round. The anæsthetic was again given, and this time the patient died. The necropsy seems to have shown old pericardial adhesions. It would be interesting to know why the administrator did not change the anæsthetic if the urgency of the case was such as to render it desirable to complete the operation on the day.

Through the courtesy of the house surgeon, Mr. S. T. Rowling, M.B., Ch.B. Vict., we have before us the particulars of a death under A.C.E. mixture which took place at the Leeds Infirmary. The patient suffered from right-sided empyema and had been an in-patient for a month, having been twice aspirated without anæsthetics being employed. On the day of his death A.C.E. mixture was given him, how we are not informed, and after six and a half drachms had been used he died "from syncope." The breathing stopped quite suddenly before the operation was commenced.

Another case of death during the performance of an operation for empyema is reported by Mr. W. J Scott, to whom we are indebted for careful notes. The patient, an alcoholic man, aged forty-five years, came under treatment for left-sided empyema. Large quantities of fœtid sputa were being expectorated. He was unable to lie in the dorsal decubitus owing to dyspnœa. The administration of the anæsthetic was was commenced by giving A.C.E. mixture from a Skinner's mask held at a little distance from the patient's face. In about one and a half minutes this was replaced by ether given with extreme caution from a sponge in an open celluloid cone with abundance of air. After four minutes slight rigidity was present, but the conjunctival reflex and cough persisted. The pulse and colour were both good, and when some slight stertor was heard it was decided to commence the operation, although the conjunctival reflex was not abolished. The patient was turned on his sound side, and before the parietes could be incised down to the bone the patient grew cyanosed and breathing was embarrassed. The anæsthetic was stopped as soon as the change in posture was effected. Upon the onset of these grave symptoms the patient was turned on his back, the jaw held forward, and slight pressure made upon the ribs of the sound side, the shoulder and arms being extended in inspiration. The breathing then grew regular and the pulse became fairly good. The patient was then placed at the edge of the table and turned slightly on his sound side. The cyanosis at once re-appeared and quantities of fœtid pus poured from the mouth. Artificial respiration only appeared to increase this condition, and the patient died. We can only deplore with Mr. Scott the result of the case. The notes show that everything which human foresight could indicate was done, and that the unhappy patient's condition rendered it practically a foregone conclusion that even the greatest skill and care must fail to obviate a fatal issue.

In the next case the patient seems to have been in a grave condition due to peritonitis following intestinal obstruction, and upon being taken to the infirmary at Stafford, where he was given chloroform, it was found that his condition grew worse under this anæsthetic, so that a mixture of it with ether was substituted. Under this, however, he sank and died. It is probable that here the anæsthetic only accelerated the death, and we may perhaps assume that the most depressing form of anæsthetic was at first used for reasons which do not appear in the account of the fatality which lies before us. In many such cases a very small amount of an anæsthetic—ether for choice, as it stimulates—suffices for incision of the abdominal parietes, and the subsequent procedure can be carried through with practically no further anæsthetic. A whiff at the close of the operation when skin sutures are being applied will render the procedure painless.

THE HEALTH OF THE EUROPEAN ARMY IN INDIA.

THE Army Health Protection Association, India, has issued a memorandum setting forth the history of the political and other changes affecting the health conditions of the troops composing the European force in India, and the causes which in their opinion have given rise to the great prevalence of contagious diseases existing at the present time. A letter, signed by Colonel F. C. Keyser, the honorary secretary of the association, accompanies the memorandum, in which the increase of disease is attributed to the partial, and at last complete, abandonment of measures of control and protection in cantonments. After succinctly referring to the successive steps taken in this policy of abandonment forced upon the Government of India, the letter goes on to state that the objects of the association are twofold—to furnish the public with a correct account of the facts of the case and clear away the ignorance and misunderstanding which at present beset the subject; and to bring to bear on the Government the force of a combined, rational, and well informed public opinion. The memorandum discusses the subject more in detail, and should be studied by all who are interested in the question. There is no need for us to express our concurrence in the objects of the association, for readers of THE LANCET must be thoroughly aware of the views entertained by us in regard to the subject in question.

A NATIONAL MEMORIAL TO JENNER.

A MEETING was held on Wednesday last, March 31st, in the theatre of the University of London, with the object of establishing a national memorial to Edward Jenner. The Duke of Westminster, K.G., presided. Among those present were the Duchess of Westminster, Lord Herschell, G.C.B. (chairman of the Royal Commission on Vaccination), Lord Lister (President of the Royal Society), the Earl of Cork and Orrery, K.P., Professor Michael Foster (Secretary of the Royal Society), Sir Alfred Lyall, K.C.B., Lord Davey, Mr. Brudenell Carter, the Earl of Ducie, Viscount Clifden, Dr. S. M. Copeman, Sir H. Cunningham, Sir John Evans, Dr. W. Ewart, Sir Joseph Fayrer, Sir W. H. Flower, Dr. Glover, Dr. John W. Ogle, Sir H. Roscoe, and Colonel Keyser, C.B.

In opening the proceedings the DUKE of WESTMINSTER said he was the nephew of one who at the commencement of the century contracted the disease of small-pox ten years after he had been vaccinated by Jenner himself—quoted as a proof of the failure of the system—but who, if a failure, was none the worse for the attack, and lived without spot or blemish through the greater part of this century, leaving us only a few years ago at the good old age of ninety-two. The present meeting was the outcome of a preliminary gathering held in December of last year, on which occasion, while there was a remarkable unanimity on the part of gentlemen of eminence and authority attending it, some little doubt was expressed by one or two who were present as to whether it would be advisable or prudent to attempt to connect the memorial with any particular institution. That doubt was, however, not crystallised into any shape or form of opposition and he took it that an overwhelming conviction obtained in the minds of all sensible people that the world owed a deep debt of gratitude to Jenner for saving its inhabitants from a foul disease if only they would adopt his treatment carefully and periodically. He referred to the false and misleading statements that were circulated among the ignorant, prejudicing their minds against vaccination, which had told so disastrously in Jenner's own county at Gloucester, where it required a severe epidemic of small-pox to convert the anti-vaccinationists there into fervent admirers and adopters of vaccination. It was surely high time that this, the native land of Jenner, should rise to the occasion and, after 100 years after the first successful vaccination, take active and effective steps to carefully preserve his great legacy to the world, and to do more, to give every facility for the promotion of science in the direction of the prevention of diseases. It had been suggested that the statue of Jenner now in Kensington-gardens, a site hardly worthy of him, might be removed and placed opposite St. George's Hospital, but he ventured to think that his native village of Berkeley might perhaps more fittingly receive it.

Lord HERSCHELL, in moving the first resolution, "That the present is an appropriate time to inaugurate a work of national utility in honour of Edward Jenner," said a hundred years ago small-pox was committing ravages which we could now hardly realise. Jenner introduced to the world his discovery that inoculation of cow-pox would prevent attacks of the disease, and at the end of the first quarter of the century a marked change was seen not only in this country, but in many of the countries of Europe. From the outset there had been those who doubted the efficacy of vaccination, and the Commission on the subject, over which he presided for many years, had just issued its report. A vast amount of material was considered, and it fell to his lot to have to digest that material, analyse it, and submit a report for the consideration of his colleagues. When he approached that task he approached it with a determination to follow the results to which the facts led whatever they might be, and he was surprised at the force of the evidence in favour of vaccination. From the Blue-book he quoted figures in favour of vaccination which, he said, it was difficult for human reason to resist. Jenner's character and veracity had been attacked by some people who pointed out that he asserted or expected that vaccination would be permanent in its effects, while everybody now admitted that absolute permanency did not exist. The only way to tell whether it would be permanent or not was by experience, and those who availed themselves of the experience of a century of vaccination to assail Jenner, who necessarily did not possess that experience, were the same persons who very often refused to yield to the teachings of experience when they inquired now what had been the effects of vaccination. Jenner was the first to illustrate a principle which seemed destined to play an important part in the history of preventive medicine. Surely this alone was a high tribute to Jenner and the value of his discovery. His name was held in reverence by the highest men of science and the most civilised countries in the world. Some of those countries had commemorated his centenary. Jenner was an Englishman, and were Englishmen to be behindhand in testifying their admiration of the man and their sense of the benefits he had conferred on humanity?

Professor MICHAEL FOSTER, who seconded the resolution, said he would like to re-echo the words of Lord Herschell and claim for Jenner's work scientific merit. Except, perhaps, for the fact that the labours of Dr. Monckton Copeman and others tended to minimise the dangers of vaccination, relatively little progress had been made in the principles laid down by Jenner till the time of Pasteur. Jenner was governed by the idea we now call the doctrine of attenuation, a doctrine revived by Pasteur, and which had become the basis of our great progress at the present time.

Sir ALFRED LYALL supported the resolution, which was carried unanimously.

Lord LISTER moved: "That a subscription be set on foot with a view of promoting, in connexion with the British Institute of Preventive Medicine, but in a manner distinguished by Jenner's name, researches on the lines which he initiated." In proposing the resolution Lord Lister took occasion to correct a mistake which he made in his presidential address to the British Association at Liverpool. The mistake, he said, had been made a very great deal of in the newspapers and had been taken advantage of by the anti-vaccination party in distributing a leaflet to that meeting. The statement was to the effect that small-pox was absolutely unknown in the German army as a result of the re-vaccination of all recruits. He had quoted from memory after reading an authority on the subject, and if he had stated that "fatal" small-pox was absolutely unknown in the German army he should have been speaking the literal truth. Such being the case, he did not think it necessary to rectify in a public manner the mistake he had made when a letter appeared in the *Times* of Sept. 23rd of last year calling attention to this mistake. He had since obtained the official documents from which the writer of this letter had taken the facts to convict him. Now he asserted that from 1874–75 to 1886–87 the only death from small-pox that occurred in the German army was that of a man who was proved not to have been properly vaccinated. If, instead of deaths, he took the cases, in 1886–87 there were seven out of 344,000 men, in 1885–86 there were six, in 1884–85 there were seven, and so on. He thought, therefore, he had not made any very serious blunder after all. The writer of the letter had also contended that vaccination had had no influence whatever in diminishing the death-rate from small-pox in the German army. He (the speaker) had examined the official statistics, and found that from 1874–75, when the Compulsory Re-vaccination Law was passed, the mortality from that cause in the army had become absolutely *nil*. Not only so, but, as a German authority himself had been lately saying, Germany might now be said to be practically free from small-pox. He was glad to take this opportunity of correcting his mistake, because it enabled him to support the principle of vaccination from German statistics. He pointed out the value of research on the lines laid down by Jenner, giving as examples Dr. Koch's treatment of rinderpest in South Africa, M. Haffkine's inoculations in connexion with the bubonic plague, the experiments of Dr. Yersin, and the results obtained by the use of anti-diphtheric serum in this country, which had saved a multitude of young lives, and which was due to the Institute of Preventive Medicine. He suggested that this name might possibly be altered to that of the Jenner Institute.

Lord DAVEY seconded, and Mr. BRUDENELL CARTER supported, the resolution, which was carried unanimously.

A vote of thanks to the chairman, proposed by the Earl of DUCIE and seconded by Dr. GLOVER, terminated the proceedings.

VENEREAL DISEASE AMONG THE INDIAN TROOPS: THE ACTION OF THE GOVERNMENT.

A MILITARY despatch from Lord George Hamilton to the Government of India, dated March 26th, 1897, was presented to the House of Commons on Thursday, April 1st. After recapitulating the facts and figures proving the terrible increase in venereal ravages among the Indian troops Lord George Hamilton goes on to say:—

"Your Excellency will, I am confident, concur with Her Majesty's Government that in any measures which may be adopted there must be nothing that can be represented as an encouragement of vice. There must be no provision of women for the use of soldiers by any authority, civil or military. There must be no registration of prostitutes other than that which is, or should be, enforced for all inhabitants of cantonments, and no granting of licences to practise prostitution. There must be no compulsory and periodical examination of women. Prostitutes must not be allowed to reside in regimental bazaars or to accompany regiments on the march. Subject to these restrictions, Her Majesty's Government consider that Rules 5, 6, and 7 of the Cantonment Rules[1] made in 1895, under Sections 26 and 27 of the Cantonment Act of 1889, should be made applicable not merely to 'cholera, small-pox, diphtheria, or typhoid fever,' as specified in the rules, but to all contagious and infectious diseases, including venereal disease. They consider it imperatively necessary that this disease should not be exempted from the measures adopted to prevent the spread of other contagious diseases. It may be argued that the examination of women which may, but need not necessarily, be held under these rules is in effect compulsory. Her Majesty's Government do not share this view. But if there be any compulsion it is precisely of the same kind as that which has been accepted as necessary and enforced without any objection in the case of diphtheria or typhoid fever. There will be no obligation on women to attend hospital, but as an alternative to doing so they will be required to leave the cantonment, and rightly so, as an almost certain cause of disease to others. Her Majesty's Government also approve of the suggestion made by the Army Sanitary Committee as to the employment of female hospital assistants under the direction of the medical officer in the examination and treatment of women."

It is to be hoped that these measures will mitigate the terrible scourge, but we await, before expressing any opinion on the point, the draft rules that the Indian Government will now issue to give effect to the despatch. On these everything will turn.

[1] The following are the clauses from the Cantonment Rules:—"5. If the medical officer for the time being in charge of any such hospital is informed upon testimony which he believes to be credible that any person living in the cantonment is suffering from cholera, small-pox, diphtheria, or typhoid fever, he may by notice require such person to attend at the hospital at a time to be mentioned in such notice; and if upon the attendance of such person in pursuance of such notice or otherwise he shall ascertain that such person is in fact suffering from any of the above-mentioned disorders, he may require such person to remain in the hospital until he shall have been pronounced free from such disorder, or may give such other direction in the matter as may seem to him most expedient for the purpose of preventing the spread of such disorder. 6. If any person upon whom any such notice as is mentioned in the last preceding rule shall have been served shall refuse or neglect to attend at the hospital in pursuance of such notice, he shall be deemed to be suffering from such disorder as aforesaid and to have refused to go to the hospital. 7. If the medical officer for the time being in charge of any such hospital certifies in writing to the commanding officer of the cantonment that any person living in the cantonment is or is deemed to be suffering from any of the disorders mentioned in Rule 5, and that such person has refused or is deemed to have refused to go to the hospital, or that he, having gone to the hospital, has left it while still under the influence of such disorder, and that the continuance of such person in the cantonment is likely to be attended with danger to the health of the other inhabitants of the cantonment or some of them, the cantonment magistrate may, on the application of such medical officer, order such person to remove from the cantonment within twenty-four hours, and prohibit such person from remaining in or re-entering it without the written permission of such medical officer."

A COMMISSION has been signed by the Lord-Lieutenant of the County of London appointing as a Deputy-Lieutenant of the County Mr. Frederic Hetley, M.D. St. And., F.R.C.S. Eng., of Norbury Lodge, S.E.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In thirty-three of the largest English towns 6697 births and 3939 deaths were registered during the week ending March 27th. The annual rate of mortality in these towns, which had increased in the three preceding weeks from 18·1 to 18·7 per 1000, was again 18·7 last week. In London the rate was 17·9 per 1000, while it averaged 19·2 in the thirty-two provincial towns. The lowest death-rates in these towns were 12·9 in Croydon, 13·2 in Bristol 13·6 in Derby, and 13·7 in Brighton; the highest rates were 22·3 in Bolton, 23·2 in Norwich, 24·0 in Nottingham and in Manchester, and 24·2 in Salford. The 3939 deaths in these towns included 360 which were referred to the principal zymotic diseases, against 335 and 344 in the two preceding weeks; of these, 98 resulted from whooping-cough, 88 from measles, 64 from diphtheria, 43 from diarrhœa, 37 from scarlet fever, and 30 from "fever" (principally enteric). No fatal case of any of these diseases was recorded last week either in Wolverhampton, Derby, Birkenhead, or Halifax; among the other towns they caused the highest death-rates in Birmingham, Blackburn, Burnley, Salford, and Bolton. The greatest mortality from measles occurred in Cardiff, Bolton, Salford, and Burnley; and from whooping-cough in Swansea, Burnley, and Blackburn. The mortality from scarlet fever and from "fever" showed no marked excess in any of the large towns. The 64 deaths from diphtheria included 43 in London and 3 in Birmingham. No fatal case of small-pox was registered last week in any of the thirty-three large towns. There were 21 cases of small-pox under treatment in the Metropolitan Asylum Hospitals and in the Highgate Small-pox Hospital on Saturday last, March 27th, against 30, 29, and 21 at the end of the three preceding weeks; 2 new cases were admitted during the week, against 6, 0, and 2 in the three preceding weeks. The number of scarlet fever patients in the Metropolitan Asylum Hospitals and in the London Fever Hospital at the end of the week was 2585, against 2745, 2685, and 2622 on the three preceding Saturdays; 224 new cases were admitted during the week, against 211, 218, and 206 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 344 and 317 in the two preceding weeks, further declined to 313 last week, and were 164 below the average. The causes of 51, or 1·3 per cent., of the deaths in the thirty-three towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Bristol, Cardiff, Bradford, and in eleven other smaller towns; the largest proportions of uncertified deaths were registered in West Ham, Birmingham, Preston, and Huddersfield.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 23·1 and 23·3 per 1000 in the two preceding weeks, declined again to 22·6 during the week ending March 27th, but exceeded by 3·9 per 1000 the mean rate during the same period in the thirty-three large English towns. The rates in the eight Scotch towns ranged from 16·1 in Greenock, and 16·8 in Paisley, to 26·3 in Aberdeen, and 30·7 in Perth. The 673 deaths in these towns included 36 which were referred to measles, 33 to whooping-cough, 16 to diarrhœa, 4 to scarlet fever, 4 to "fever" and 3 to diphtheria. In all, 96 deaths resulted from these principal zymotic diseases, against 83 and 106 in the two preceding weeks. These 96 deaths were equal to an annual rate of 3·2 per 1000, which was 1·5 above the mean rate last week from the same diseases in the thirty-three large English towns. The fatal cases of measles, which had been 27 and 33 in the two preceding weeks, further rose to 36 last week, of which 19 occurred in Glasgow and 16 in Edinburgh. The 33 deaths referred to whooping-cough corresponded with the number recorded in the preceding week, and included 22 in Glasgow and 9 in Edinburgh. The fatal cases of scarlet fever, which had been 5 and 9 in the two preceding weeks, declined again to 4 last week, of which 3 occurred in Glasgow. The deaths referred to different forms of "fever," which had been 4 and 11 in the two preceding weeks, fell to 4 last week, and included 2 in Glasgow. The deaths from diseases of the respiratory organs in these towns, which had been 152 and 155 in the two

preceding weeks, further rose to 159 last week, and exceeded by 44 the number in the corresponding period of last year. The causes of 49, or more than 7 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 39·1 and 40·4 per 1000 in the two preceding weeks, declined again to 36·1 during the week ending March 27th. During the past twelve weeks of the current quarter the death-rate in the city has averaged 40·3 per 1000, the rate during the same period being 18·5 in London and 22·3 in Edinburgh. The 242 deaths registered in Dublin during the week under notice showed a decline of 29 from the number in the preceding week, and included 67 which were referred to the principal zymotic diseases, against 61 and 74 in the two preceding weeks; of these, 37 resulted from measles, 19 from whooping-cough, 7 from diarrhœa, 1 from small-pox, 1 from scarlet fever, 1 from diphtheria, and 1 from "fever." These 67 deaths were equal to an annual rate of 10·0 per 1000, the zymotic death-rate during the same period being 1·6 in London and 5·2 in Edinburgh. The fatal cases of measles, which had been 43 and 46 in the two preceding weeks, declined to 37 last week. The deaths referred to whooping-cough, which had been 9 and 20 in the two preceding weeks, were 19 last week. The mortality from scarlet fever and from "fever" showed a decline from that recorded in the preceding week. The 242 deaths in Dublin last week included 49 of infants under one year of age and 38 of persons aged upwards of sixty years; the deaths both of infants and of elderly persons were below those recorded in the preceding week. Six inquest cases and 5 deaths from violence were registered; and 66, or more than a fourth, of the deaths occurred in public institutions. The causes of 18 or more than 7 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

ARMY MEDICAL STAFF.

SURGEON-LIEUTENANT-COLONEL J. J. MORRIS has assumed Medical Charge at Citadel Barracks, Dover. Surgeon-Major North has joined at Woolwich for duty, and Surgeon-Captain C. W. Reilly will join at Woolwich during the month of April. Surgeon-Major W. D. A. Cowen proceeds from Cork to Portsmouth, for duty. Surgeon-Major R. L. Love has been ordered to proceed to Dublin for duty. Surgeon-Lieutenant-Colonel Townsend will shortly embark for India.

INDIA AND THE INDIAN MEDICAL SERVICES.

The under-mentioned officers of the Army Medical Staff on arrival from England have been posted as follows:—Surgeon-Major Heffernan, Poona District; Surgeon-Major Jencken, Poona District; Surgeon-Major Drury, Bombay District; Surgeon-Major Hewett, posted to the Nagpore District; and Surgeon-Captain Taylor has been transferred to the Mhow District from the Aden District.

The following retirement is notified subject to Her Majesty's approval:—Surgeon-Lieutenant-Colonel Alexander Kenneth Stewart, Bombay Establishment, the 4th (Prince Albert Victor's Own) Regiment of Bombay Cavalry (Poona Horse).

NAVAL MEDICAL SERVICE.

The following appointments are announced:—Staff Surgeon John P. J. Coolican to the *Wildfire*, additional for the *Sans Pareil*. Surgeons: C. H. Rock to the *Undaunted*, Daniel J. P. M'Nabb to the *Edgar*; and Robert Hickson to the *Philomel*.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Major W. R. Dambrill-Davies to be Surgeon-Lieutenant-Colonel.

ARMY MEDICAL SCHOOL, NETLEY.

The seventy-fourth session of the Army Medical School, Netley, commences to-day, Friday, April 2nd. The session will be attended by twenty-one Surgeons on probation, fourteen for the Army Medical Staff and seven for the Indian Medical Service. The following are the names of the Surgeons on probation in the order of merit as settled at the London examination:—

ARMY MEDICAL STAFF.

1. S. L. Cummins.
2. C. H. Hopkins.
3. J. McArdle.
4. P. Mackessack.
5. L. J. C. Hearn.
6. J. McD. McCarthy.
7. E. Brodribb.
8. J. G. Walker.
9. H. G. P. Stallard.
10. R. D. Jephson.
11. H. L. W. Norrington.
12. J. Poe.
13. J. Crean.
14. A. W. N. Bowen.

INDIAN MEDICAL SERVICE.

1. J. G. P. Murray.
2. S. Anderson.
3. F. H. G. Hutchinson.
4. J. L. Marjoribanks.
5. J. A. Dredge.
6. R. W. Knox.
7. A. Fenton.

THE TURKISH ARMY ON THE FRONTIER.

That the Turkish soldier is a formidable fighter has been long known, but it will be a matter of surprise to most people to learn from the military correspondent of the *Times* that Turkish organisation has made rapid strides during the last few years, especially in the matter of military railways and hospitals. Writing from Salonika with Edhem Pasha's force the correspondent refers to the creditable state of the Medical Service. He says: "The main hospital here is as good as many in Europe and has a large reserve supply of beds and medicines; the doctors are properly trained, and the ambulances well equipped and officered. A very reasonable order has just relegated all the Christian military surgeons to the depôts, while the fighting line is to be supplied with Mahommedans only. A little dysentery is the only disease from which the entire army of occupation, more than half of which has been brought from the distant provinces of Anatolia, has suffered."

THE HEALTH OF THE ARMY IN INDIA.

The *Spectator* of the 27th ult., in one of its editorial notes on current events, in referring to this subject makes some very pertinent remarks. After alluding to the lamentable prevalence of venereal disease among the European troops serving in India it says that, under these circumstances, it is the imperative duty of the Government to retrace its steps and allow the medical profession to suggest indispensable legislative precautions, which it by no means follows should be of the old kind. Our contemporary adds: "We have never been able to understand why on this subject the right of India to legislate for herself should be overridden. If legislative action with regard to sexual morality is independent of race, climate, and circumstances, how do we justify ourselves when all over India we legalise polygamy?"

The *Broad Arrow* says: "In order to meet the strain on the Indian Medical Service caused by officers being required for famine and plague duty the Government of India have sanctioned the employment in that service of Volunteers from the Army Medical Staff, on a special allowance of 300 rupees a month, in addition to their Indian pay and allowances."

The Duke of York went to Portsmouth on March 31st and visited the sick and wounded from the Benin expedition who are now at the Royal Naval Hospital at Haslar. His Royal Highness afterwards lunched with the Inspector-General and the medical officers at their mess.

It is notified in the *London Gazette*, under date March 25th, 1897, that the Queen's Birthday will be celebrated in London alone on Wednesday, May 26th next, and at all other stations, Naval and Military, on Monday, May 24th next.

Notification has been received intimating the departure from Egypt in the s.s. *Menes* of twenty-seven invalids, to arrive at Netley about March 30th.

INFANT MORTALITY IN CARMARTHEN.—The fifth annual report of Mr. L. Bowen-Jones, medical officer of health, on the sanitary condition of the Carmarthen Union has just been issued. The area of the parish is 157,495 acres and the population 24,732. The birth-rate during 1896 was 28·30 and the death-rate 15·97 per 1000. There were 77 deaths of infants under one year, indicating an infantile mortality of 110 per 1000 births. Mr. Bowen-Jones adds that no proper system of drainage existed anywhere in the district, and that, with a few exceptions, no practical steps have been taken towards improving the water supplies of the locality, notwithstanding the numerous complaints of scarcity of water which have been sent to the council.

Correspondence.

"Audi alteram partem."

FASCINATION OF SERPENTS.

To the Editors of THE LANCET.

SIRS,—Any popular so-called prejudice, if long continued, probably is founded upon some matter of fact, although this may not have been demonstrated. This was the opinion of Sir Benjamin Brodie. That some animals have the power of paralysing others which they prey upon is a matter of direct observation. A rabbit will remain perfectly motionless in the presence of a stoat, and without moving will allow a hole to be made through the skull at the back of the head. We may suppose that the power of feeling, as of motion, is for the time gone. Dr. Livingstone felt no pain when seized by a tiger. I have seen a mouse remain perfectly motionless under the gaze of a cat. When excited the cat's pupil becomes dilated. On one occasion in the evening I saw a cat in an excited state retire to a shady place where it could no longer be seen, but presently I saw two small red globes fixed upon me. I once saw the same less defined in the eyes of a kitten, but it is very difficult to get their eyes fixed when near. A general officer who has seen long service in India informed me that on one occasion a large serpent had got into a house and taken refuge in a cellar. Being a soldier, it was suggested that he was the proper person to dislodge the intruder. He took a spear and looked through a hole in the wall of the cellar, but saw no serpent. Presently two small red globes were fixed upon him. These he supposed to be the serpent's eyes and thrust his spear, as he thought, between them. The spear caught the serpent just behind the head and killed it. My principal object in writing is to ascertain from our friends in India, if possible, through the columns of THE LANCET, the information which I have in vain sought for here—viz: (1) whether serpents have a tapetum lucidum; and, if so (2), whether it is supposed to be erectile; and (3) whether it can have anything to do with the fascination which they are supposed to exercise over their prey. The reflection from the *convex* cornea in front of an eye must, of course, not be confounded with that from the *concave* tapetum at the back. In one case the reflected light is dispersed, and in the other it is concentrated and brought to a focus to suit the wants of different animals. Hitherto the functions of the tapetum lucidum have scarcely been recognised. In the preparations intended to illustrate these in the museum of the Royal College of Surgeons of England they are placed upside down. Had this been their natural position the tapetum would have been useless for the purposes for which it is intended.

I am, Sirs, your obedient servant,

HENRY LEE.

Queensborough-terrace, Hyde-park, W., March 17th, 1897.

THE STRUCTURE AND FUNCTION OF THE AURICULO-VENTRICULAR ORIFICES.

To the Editors of THE LANCET.

SIRS,—In the last paragraph of his first lecture on Some Points in the Pathology of Heart Disease, published in THE LANCET of Feb. 27th last, Dr. Starling states that "owing to the arrangement of the muscular fibres of the heart there is a strong circular band of fibres round each of the auriculo-ventricular orifices." In a paper published in the St. Bartholomew's Hospital Reports, vol. xxiii., 1887, I showed from the masterly dissections of Pettigrew[1] and those of Savory[2] and Quain,[3] and also from my own dissections, that no such sphincter arrangement of muscle exists either around the auriculo-ventricular orifices or enclosing the heart in the plane of these orifices. Indeed, it is easy to see in a heart which has been boiled that the arrangement of the muscular fibres is such as to keep these orifices open in systole. The figures in my paper show that if transverse sections are made through the ventricular walls, beginning just below the plane of these orifices, while in the orifices themselves only the vertical fibres of the first and seventh layers are found, as the sections advance towards the middle of the ventricular wall, all the seven muscular layers are found to be present, and it is at the middle third of the ventricle that fibres are seen having a transverse arrangement. Further, the simple experiment of boiling the heart destroys the fibrous tissue surrounding the auriculo-ventricular orifices, and in the case of the left auriculo-ventricular and aortic orifices causes these apertures to run into one and form a figure of 8, thus showing the entire absence of any circular band of muscular fibres. Some years ago M. Onimus[4] attempted to show that the auriculo-ventricular openings are completely closed in systole by muscular (sphincter) action; but even with regard to one of these openings he himself says: "Si, pour l'orifice auriculo-ventriculaire, on peut admettre des fibres circulaires formant des sphincters, pour l'orifice gauche cette expression n'est pas très-juste, car cette dénomination suppose un muscle annulaire, et nous avons vu qu'une partie de cet orifice était complètement fibreux." This is still further proved by making a vertical section through the junction of the posterior wall of the aorta and the anterior portion of the left auriculo-ventricular ring. At this point the densest fibrous tissue is found, which represents the so-called "heart bones" in some animals. If we assume, for the sake of argument, that a circular band of muscular fibres does exist, which surrounds the auriculo-ventricular orifices and thus encloses rings formed of dense, strong, pliable, fibrous tissue—for all the anatomists I have quoted agree in thus describing them,—when this hypothetical muscular band contracts it may possibly alter the shape of the orifice in one direction or another, but by so doing it in no way causes any diminution in the area. If a ring of whalebone—which, being formed of dense, tough, pliable material, very fairly resembles the fibrous ring of an auriculo-ventricular orifice—be encircled by an elastic band or by the fingers it will be found impossible to alter the area, the only effect produced being an alteration in the shape. I have dwelt almost entirely on the anatomical side of the question, but the mathematical and physiological arguments against the existence of a sphincter arrangement of muscular fibres surrounding the auriculo-ventricular orifices have been fully discussed by the late Dr. Herbert Davies in his papers[5] "On the Law which Regulates the Relative Magnitude of the Areas of the Four Orifices of the Heart," and on "The Four Orifices of the Heart."[6]

I am, Sirs, yours faithfully,

Finsbury-square, March 27th, 1897. ARTHUR DAVIES.

[1] J. Pettigrew: Transactions of the Royal Society, 1864.
[2] Proceedings of the Royal Society, 1851.
[3] Quain's: Anatomy, vol. ii., p. 494.
[4] Journal de l'Anatomie, 1865.
[5] Proceedings of the Royal Society, No. 118, 1870.
[6] THE LANCET, July 27th, 1872.

"A QUESTION FOR ANÆSTHETISTS."

To the Editors of THE LANCET.

SIRS,—I was very glad to receive Dr. Dudley Buxton's support in my endeavour to bring about a general improvement in the apparatus used for the administration of anæsthetics, and to learn that the advisability of sterilising inhalers has received his attention. Correspondence has reached me both from the United States and Canada showing that danger from inhalers had been observed by others in the Western Hemisphere, and that attention had been directed to it before my communication to THE LANCET of Feb. 20th. A leaflet from the *Montreal Medical Journal* of May, 1895, has been sent me by Dr. James Bell, who, in recommending a simple form of ether inhaler, uses the following vigorous language in condemnation of one formerly much in use: "The Clover inhaler, which is now so much in vogue, possesses all the disadvantages which it is possible for an ether inhaler to possess. It is impossible to cleanse it. Patients go on, one after the other, respiring through the same filthy mask and the same rubber bag, each one adding his quota of mouth secretions, perhaps syphilitic, cancerous, or tubercular. Tubercle bacilli must frequently be deposited on its walls and vomited matter saturates it from time to time, not to speak of the absolute impossibility of sterilising the mouthpiece to correspond with the precautions which we take with all the other substances coming into close contact with the field of operation. It seems strange that with the knowledge of bacteria which has been accumulating for years, and our very strict precautions, based upon this knowledge, to avoid wound infection in

surgical operations, that there has not long ago been devised some means to provide an aseptic inhaler, and one which could be cleansed of the secretions and exhalations of one patient before applying it to the face of another. It is simply horrible to contemplate the use of a Clover inhaler and bag which has already been used on the face of hundreds of other patients, and without any possibility of properly cleansing it, either by heat or chemical sterilisation." Thus, whilst I, in this centre of civilisation, have been mildly urging reform and gently suggesting a change in anæsthetic apparatus, my colonial friend has forestalled me by nearly two years in an onslaught which for dash and courage reminds one of the long lost "Rupert of debate."

My colleague Dr. Silk has done me the honour of discussing my paper in THE LANCET of March 20th from an "anæsthetist's point of view" in a very temperate article, though he must be regarded as holding a brief for the defence. What he says is perfectly true, that pneumonia from septic wound infection is practically removed from surgical practice; but surely this is all the more reason that direct lung infection, such as the case I quoted, rare though it may be, should be more strictly guarded against than at present. His argument against the bacillary origin of pneumonia would not, I am afraid, be accepted by any modern physicians, who are now beginning to classify pleurisies according to the particular organism exciting the effusion. It is sad to think anyone could now be satisfied with the view that the only relation of germ-infection to pneumonia is that the "conditions and secretions of pneumonia furnish very suitable media for the growth of the organisms in question." I will only state with regard to this remark that this was precisely the argument used by the older surgeons when antiseptic surgery was first introduced. They tried to teach us that the bacteria of suppuration were the result, not the cause, of the process. His third argument, that because in their concentrated form chloroform, ether, and alcohol are fatal to bacilli, therefore the masks which are subjected to a dilute vapour would be free from living organisms, is not one that would hold, seeing how difficult it is to destroy these organisms. Surely physicians would long ago have cured all cases of phthisis by the aid of their friends among the anæsthetists if the vapour of any of the drugs used for producing anæsthesia could be trusted to destroy tubercle in the lung. In the end, however, Dr. Silk and I are in perfect agreement that there is still room for improvement in inhalers, and he has long been at work to produce an instrument capable of being sterilised, though perfectly conscious that he could never have done any harm by one that was not capable of being absolutely cleansed. His inventive genius has broken loose in spite of his arguments, and he has been impelled to produce an instrument his reasoning shows is quite unnecessary. He has travelled from a leather mask, through a celluloid inhaler, up to a metal face-piece, and he ends by saying of this: "One of the advantages which I claimed for it being that it met with the demand for an inhaler which could be subjected to the same aseptic treatment as the instruments employed in the operation." Could any two persons be in more absolute harmony? Unfortunately, the ladder by which Dr. Silk ascended still stands against the wall, and the celluloid masks with their septic flannel linings and sponges are still in common use. Some time ago I proposed an Instrument Destruction Committee, to have power to destroy all instruments out of date, and so relieve hospital surgeons of having to operate with instruments invented several generations before. I think the Society of Anæsthetists would do good work by appointing a committee to report on inhalers meeting the requirements of modern surgery, and at the same time empower it to do what is possible to stamp out those belonging to the septic era. My own suggestion, that toughened glass would be the best material for a mask, has, according to Dr. Buxton, been anticipated by Vajna of Budapest, and since this invention has been so highly spoken of I hope we may soon see specimens in use in London.

I am, Sirs, yours faithfully,
R. CLEMENT LUCAS, B.S. Lond., F.R.C.S. Eng.,
Surgeon to Guy's Hospital.
Wimpole-street, W., March 29th.

To the Editors of THE LANCET.

SIRS,—The question indistinctly asked by Dr. Florence Nightingale Boyd in your last issue arises only from the strange tendency there seems to be to forget or ignore in one generation the facts established in that preceding it. It cannot be more than fifteen years since the following facts concerning ether as an anæsthetic were proved beyond dispute: 1. That during its administration the secretion of urine is suppressed. 2. That in damaged kidneys this temporary suppression sometimes becomes permanent. 3. That in certain diseases where structural alteration of the kidneys becomes almost a matter of course, as in large tumours of the uterus and chronic syphilis, rapid and fatal pneumonia or suffocative pulmonary œdema, resulting from the use of ether, adds greatly and unnecessarily to the mortality of operations. 4. That ether is a far more fatal anæsthetic than chloroform, only its victims die some days after the administration, and there are no inquests.

I am, Sirs, yours faithfully,
Birmingham, March 29th, 1897. LAWSON TAIT.

THE RETURN OF MIDWIFERY CASES IN POOR-LAW UNIONS.

To the Editors of THE LANCET.

SIRS,—As many persons seem to be interested in a return of midwifery cases in Poor-law unions for which I have given notice, I shall be obliged if you will allow me to inform them through the columns of THE LANCET that I have received information from the Local Government Board that they cannot at present grant the return owing to the pressure in the statistical branch of the Board, where the work is considerably in arrear and many returns are wanted, particularly in connexion with the Local Taxation Commission. There is no prospect of obtaining the return except as an unopposed one, and as no useful purpose would be served by keeping my notice on the paper I have no alternative but to withdraw it. I am, Sirs, yours faithfully,
House of Commons, March 25th, 1897. J. H. JOHNSTONE.

"SHOULD EPILEPTICS MARRY?"

To the Editors of THE LANCET.

SIRS,—The question raised by Mr. W. G. Thistle as to whether acquired characters are or are not transmissible is one of immense importance to medical men, but it is one which has not received the attention it deserves from them. Rightly or wrongly, very many—I believe the vast majority—hold the opinion that acquired characters—e.g., the effects of injury or disease—are transmissible, and in medical literature one constantly meets statements implying this belief. For instance, not long ago an ophthalmic surgeon advised his students to pay increased attention to the eyes of children, for, argued he, these young people have yet to bear offspring, who will suffer from the transmitted effects of parental disease; whereas the effects of disease in the aged will not afflict an unborn generation. Again, "M.R.C.S., L.S.A.," writing in THE LANCET of March 27th (p. 931), tells us of a hare-lip which resulted, as he supposes, from the circumstance that the pregnant mother was frightened by a hare. In the words of Mr. Herbert Spencer, "Clearer conceptions of these matters would be reached if, instead of thinking in abstract terms, the physiological processes concerned were brought into the foreground." It is constantly forgotten that an animal (a man, for instance) is not the offspring of the whole of his parent's body. He develops out of a very minute portion of it only—the germ cell. His eyes are not the offspring of his parent's eyes, his legs have not origin in his parent's legs, and his brain is not descended from his parent's brain; but every portion of him arises solely from the germ cell, which, so far as we know, is indebted to the other cells only for shelter and nutrition. This consideration renders unbelievable the hypothesis that acquired traits are transmissible. Suppose, for instance, a man injures his eye or receives such injury to his brain that epilepsy supervenes; then, if his acquired character is to be transmitted, his spermatozoon, situated far distant, must be so structurally altered, so profoundly modified in a particular direction, that long after separation from the parent organism it will proliferate into an organism which has, inborn, the peculiarity which the parent acquired. By what machinery is this modification of the germ cell brought about? The case for the transmission of such maternal impressions as "M.R.C.S., L.S.A.," chronicles is even harder. What magical influence, does he suppose, emanated from the brain

cells of the mother and so affected her embryo, situated on the other side of the placenta and at the end of the long umbilical cord, that a hare-lip resulted? It must be remembered that it is not maintained by those who deny the transmissibility of acquired characters that changes acquired by the parent are incapable of influencing the germ cells; but it is strenuously maintained that they do not influence the germs in such a manner that *particular* changes in the parent are reproduced in the child. It is true that at first sight it seems only reasonable to suppose (for instance) that if a man strengthen his muscles by exercise his children will be the stronger, or if he be weakened by disease his children will be the weaker; but, as a matter of fact, though a fierce controversy on the subject has long raged, and though the phenomena of nature have been ransacked, no clear and indubitable example of the transmission of an acquired character has yet been recorded. Syphilis and phthisis, which are instanced by Mr. Thistle, do not touch the point at issue. Similar effects arise in both the child and the parent merely because they are both infected with the same species of pathogenic micro-organism.

I am, Sirs, yours faithfully,

Southsea, March 29th, 1897. G. ARCHDALL REID, M.B. Edin.

*** Dr. T. Frederick Pearse writes recommending to our readers in connexion with this subject a perusal of Dr. Archdall Reid's recent work on "The Present Evolution of Man," and adds, "I think Mr. Thistle, if he reads this, will see reason to conclude that acquired lesions cannot be transmitted."—ED. L.

"THE MIDWIVES REGISTRATION BILL."

To the Editors of THE LANCET.

SIRS,—The letter of "For Registration" emphasises only too horribly the intolerable evil of existing conditions, about which there is, however, no difference of opinion. The only question is, Does registration provide a rational and effective remedy? If we opponents of the Bill were imbecile enough to argue, as "For Registration" assumes, "that the poor should pay a medical man," or if it were true that unless they pay for medical attendance they must go without it and be content to fall into the hands of midwives, we should welcome this Bill as offering at least a decided improvement, however inadequate to the needs of the case. For those, however, who have no eye to moneyed interests of profession, obstetrical society, or incorporated midwives' institute (whatever under heaven that may be), but who have at their hearts only compassion for the multitude—a single-minded anxiety for the safety and health of their sisters among the poor—it seems to me that the whole matter turns on the one point of the pretended total impossibility of securing in any conceivably practical manner the same quality of aid in the perils of childbed for the poor citizen as wealthy citizens are careful to engage for themselves. If, on the contrary, such an aim can be shown to be attainable and without the creation of any new agencies, then I contend earnestly that any scheme falling short of this is no better than an unworthy tinkering with the mischief, a penalising of mere poverty as such with avoidable risks to health and life—by the very State, too, that poses with its Poor-law as the great "guardian of the poor"; and, finally, a meanly ungenerous proffer on the part of property-owning legislators—moved mainly by others we wot of with axes to grind—a proffer of a "cheap and nasty" article, whose sole recommendation is its cheapness, and which they would disdain to use for themselves. In this view of the situation I crave permission to formulate more fully a constructive policy that I submit would abundantly meet every requirement, and would effect generally, as it has done where it is in even partial operation locally, the total extinction of the midwife as the "unfit."

First, then, let certain permissive powers—already possessed by boards of guardians and enumerated shortly in my letter in THE LANCET of Feb. 27th—be made general and obligatory. Let it then be proclaimed by the fullest public advertisement throughout the land that every woman in circumstances requiring such medical relief can be supplied with an order for medical attendance in confinement, which she may present to the medical man of her choice and which will be honoured by the guardians; that in case of sudden emergency the same liability of the guardians will hold good without any order; that this, as being the statutory right of every impoverished citizen, involves no disqualification, social or political; that in case of anyone temporarily embarrassed—e.g., by loss of employment—and too proud or too honest to accept such gratuitous service, it will be provided by the guardians on loan, to be refunded as soon as times become good enough. Thus by a mere stroke of the pen we provide at once for all the poorest. The fees for these State patients would be fixed, as now, by the State. The medical profession is a monopoly created by the State in the interests of the public. There could be, to my thinking, no just ground of grievance to those enjoying all the benefits such monopoly and State recognition confer if it were made a condition that its members should act upon these calls of the State and accept the fees regulated by the State.

For those of the people less sunk in poverty and requiring only to be helped to help themselves the Government should immediately create machinery for extending throughout the kingdom correlating and organising dispensaries, maternity hospitals, and maternity clubs, either voluntary or subsidised, or purely municipal. To all of these the beneficiaries would be required to contribute by fixed payments, in anticipation of the event, a certain part of the cost of attendance. The choice of her attendant would rest with the patient, who would be supplied with an order from the institution. If voluntary support were insufficient, State aid from rates or taxes would be needed, with concurrent public control by parish council or otherwise. With regard to the floating part of our population, under a proper organisation of these institutions, whenever a family moved into another district payments made to the club or dispensary of the previous locality could be transferred to the newcomer's credit with the analogous institution at her fresh quarters.

It will be seen that this extension of the sphere and operation of State medicine would be much on all fours with our system of State elementary education, the clubs, &c., in the one case corresponding to the schools in the other; and just as before the days of free education guardians paid school fees for children (without pauperisation) of parents too poor to afford them, so it might be found advisable to relate the Poor-law unions to the local machinery for medical aid to the poor, so that guardians should pay into these agencies for confinements of women too poor to raise the regulation contributions.

Until some serious attempt to tackle the problem in a bold and statesmanlike way has been made and has failed I confess I cannot understand any one lending himself—and still less herself—to such a half-hearted measure, a piece of quasi-benevolent but essentially contemptuous and degrading class legislation for which the utmost that can be said is that it proposes to substitute for a very glaring evil another just as real, but not so bad.

I am, Sirs, yours truly,

Streatham, March 23rd, 1897. THOS. M. WATT.

"A SUCCESSFUL SOCIETY!!"

To the Editors of THE LANCET.

SIRS,—You have paid the highest compliment in your power to the arguments in my letter of March 23rd, for in your issue of to-day you suppress the letter and then misrepresent its contents. I never said that anybody had done things they were not licensed to do. I said that being licensed to do them they did do them. "Words mean what they do mean, and not other things," and my words were clear. Those who support vivisection are wise to avoid legitimate controversy, for if they venture into that arena they are lost. They cry aloud and call their adversary names, which is easier than answering him, but it does not advance truth and is not a very scientific method. Hysteria is not argument. Should you, however, at any time take heart to argue the question with fairness and courtesy I shall be ready to meet you in a like spirit.

I remain, Sirs, your obedient servant,

STEPHEN COLERIDGE.

Egerton Mansions, South Kensington, March 27th, 1897.

*** Mr. Coleridge has stated in a letter to H.R.H. the Prince of Wales, with regard to the Prince's Hospital Fund, that animals "are slowly cut up alive without even the pretence of anæsthetics in many of the laboratories attached to

those hospitals." The Home Secretary has stated in the House of Commons that the certificate allowing experiments upon animals without the use of anæsthetics is only granted for inoculations and similar trivial operations. "Words mean what they do mean, and not other things." How does Mr. Coleridge reconcile his words with truth? Hysteria is not argument.—ED. L.

THE GENERAL PRACTITIONER IN THE UNITED STATES.

To the Editors of THE LANCET.

SIRS,—To the average general practitioner in Great Britain the prospects of success in medical practice may seem at times somewhat gloomy; it may therefore perhaps be some slight consolation to him if he will contrast with his own hardships a picture of those which have to be endured by his professional brethren in this land of liberty, where the distinction between a profession and a trade seems oftentimes to have totally disappeared.

To begin with the licence to practise. The obtaining of a degree has until quite lately been a matter of such ease, owing to the competition of so many schools and colleges, that those who append M.D. to their names are in a greater proportion than 1 to every 500 of the population. There is but one medical diploma—that of M.D.—and each medical school has the power of granting this degree to its own students after a course of study which is regulated solely by the ideas of its own particular staff. The length of this course until recently has not exceeded three years, and frequently only seven months of each year. Within the last few years many of the best colleges have adopted with pride—which is perhaps justifiable—a four years' course, although there are quite a number, including Yale University in New Haven, Connecticut, which still require only three years; in many cases, also, only one year's actual attendance at the school was necessary, experience under a reputable physician being accepted as sufficient. The holding of the posts of clinical clerk and surgical dresser are nowhere considered necessary, so that practical experience is undoubtedly wanting. In addition to the first-class medical colleges, there are and have been a vast number of institutions of very small reputation whose existence has often been quite ephemeral and whose degrees were conferred after courses of study from two years downwards, so that the most unambitious individual could gratify his wish for a diploma without even abandoning any occupation or business in which he might be employed. Consequently only the initiated can tell whether a certain degree is worth anything or not, as in order to ascertain the school of graduation one must consult a work known as Palk's Medical Directory, which is simply a catalogue of all who profess the healing art, including irregulars of every description. This work usually appends to each man's name his place of graduation if he be willing to give the information; it then remains to look up the status of the particular school. This work, of course, is not reliable, as the compilers invariably take a man's word about himself and do not profess to give any further guarantee of his genuineness. In consequence of this past general laxity in medical education the ranks of the profession have become overcrowded and the status of many of its members very low.

Within the last ten years, however, there has begun an energetic movement of reform, and many States have adopted laws for the regulation of medical practice, insisting that for the future a medical man wishing to practise within a particular State must satisfy the medical board of that State that he possesses a diploma from a reputable college within its boundaries, or in default thereof must pass the examination set forth by the board. Here we come to a peculiar feature which makes it appear as if the profession of each State was more jealous of outsiders, however eminent, than of irregulars within its borders, for nearly all the laws agree in one respect—instead of admitting any medical man whose diploma is of unquestionable merit, they require everyone alike to pass their own particular examination, whether the applicant be a graduate of the highest school in the land or an itinerant herbalist, so that the graduate of Belle Vue Hospital Medical College, New York, or Harvard University, Boston, if he wishes to practise in Baltimore or Philadelphia must spend several months working for his examination in subjects like botany, chemistry, &c., and must also pay a fee more or less heavy. In Pennsylvania this absurdity is extreme, as the State board apparently has no confidence in any of its own schools, some of which are undoubtedly in the front rank. Accordingly it requires its own graduates, as well as all outsiders, to pass the examination alike, even if they have only just taken their degree in the same subjects and were examined by many of the same professors who sit on the board. The regular practitioners may join the State medical society, which, if it happens to have stringent rules as to admission, will confer on him its hallmark of respectability, but as there are usually in addition a homœopathic medical society and an eclectic medical society in the same State the advantage is not perhaps so great as it appears, particularly as the ordinary layman does not know anything about such matters.

The prescribing chemist, who advertises a proprietary remedy for every ailment or symptom, flourishes here even more than in Great Britain, and if he cannot persuade the sufferer to patronise secret formulas will not hesitate to offer him the modern compressed preparation which was intended for a more orthodox prescription. On the other hand, we do not have much of the "provident dispensary" which is usually run for the profit of one man; and there is not the enormous waste of misapplied medical charity which every city in England tolerates.

It speaks well for American "grit" that things are not even worse than they are, and one can therefore have good hopes for the future; but at present to the English medical man who has ideas of starting for this field there is only one good piece of advice—"Don't."

I am, Sirs, yours faithfully,

March 22nd, 1897. A BRITISH EXILE.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Trafford Park and Heaton Park.

THE "outrage" you deplore in THE LANCET of March 27th will, it is pretty certain, be perpetrated, and Manchester, with the neighbouring borough of Salford, will have to bear as they best may the loss of their largest and most valuable "lung." It may be doubted whether those members of the Corporation who voted against acquiring an open space "of absolutely incalculable value," as you justly say, have had even yet the wit to discover the blunder they committed. This will appear when their tactics with regard to Heaton Park are considered. It is still in the market, and although perhaps less favourably situated than Trafford Park it would confer great benefit to the community of Manchester if it were preserved from the inroads of the builder. Time will show whether the City Council intend to allow this the last opportunity of acquiring a park worthy of the name to fall through (for the supply of open spaces is exhausted), or whether they will rise to their duty and secure it for the benefit of this generation and of those that will follow us.

Manchester Adult Deaf and Dumb Institution.

Something has been done by lip-reading and other methods to make communication of the deaf and dumb with their fellows less difficult and so to alleviate a little their life of solitude, while the education of deaf and dumb children up to the age of sixteen years is now compulsory. After this period such societies as the Manchester Adult Deaf and Dumb Institution, which held its annual meeting on March 26th, are specially useful by providing for the deaf and dumb—in the words of the report—"religious services, visiting them in sickness, assisting them to obtain employment to earn their livelihood, and by occasionally granting temporary relief." At the Institute in Grosvenor-street lectures and other meetings are held in the reading-room, where papers, books, and periodicals are kept. The Lord Mayor, Alderman J. F. Roberts, who was in the chair, asked, "What would such afflicted individuals as the deaf and dumb do without such an institute, which was a church, a school, and a club combined?" There is no question as to its work being useful, but it has not gained the support of the benevolent as it should have done. The committee say

they need an annual income from subscriptions and donations of £500 to carry out the work efficiently, while in 1896 they received only £278; but there still remained a balance in hand on the fund of the Lady Mayoress's garden party which took place in the summer.

Ancoats Healthy Homes Society.

It is a wholesome sign that in one of the poorest and most crowded of the industrial districts of Manchester a large audience of the residents should have met together on Wednesday, March 24th, to hear from our *confrère* Dr. J. M. Rhodes, the chairman of the Chorlton Board of Guardians, an address on "Pauperism, Past and Present." The Ancoats Healthy Homes Society is an association of working men trying to brighten their own homes and those of their neighbours by entertainments and addresses which those more fortunate than themselves are always ready to give on various subjects. It is one of the offshoots of the Sanitary Association. Dr. Rhodes drew a graphic picture of the condition of the poor in the past, and showed that "the present condition of the workers of to-day was vastly superior to that of former times." By the help of coloured charts he explained the incidence of pauperism and Poor-law taxation, and he pointed out that the ratio of pauperism was greater in the agricultural districts of the East and South than in the mining and manufacturing districts of the North and West. He named over population and drink as the chief causes of pauperism, and urged his hearers to work out their own salvation—to use too common a phrase—by cultivating the old-fashioned, and among a large number almost forgotten, virtues of industry and perseverance, sobriety and thrift.

The Sanitary Committee and Cleared Areas.

At the last meeting of the City Council the consideration of the report of the sanitary committee, dated Feb. 8th, 1897, was resumed. Some members objected strongly to the proposal to build a large lodging-house in Ancoats, which seems unreasonable in face of the fact that twenty-nine registered lodging-houses, with accommodation for between 450 and 500 people, were taken down in connexion with the opening out of Whitworth-street. These people must have some provision made for them. In a large population there will always be single men and women, who are all the more likely to remain or to become decent and respectable if proper provision is made for their lodging and if they are not treated as outcasts and pariahs. But among a section of the City Council there is a strong and unreasonable prejudice against any such provision being made. The present lodging-houses, which are under the control of the watch committee, do not seem to be quite the models they ought to be, for Dr. Dearden said that many of them were veritable death-traps from the "respiratory impurity" of the air in the bedrooms at night. Dr. Daly thought that if Mr. Boyle—the principal objector—and his supporters had seen the London lodging-houses visited by the committee they would not allow sentimental objections to weigh with them; but this gentleman—who is a member of the watch committee and perhaps objects to the sanitary committee touching the lodging-house question—retorted, "It was all very well for the medical members of the council to air their fads." In this case the fads are decency and sufficient ventilation. Alderman McDougall very properly insisted on the importance of securing the thorough sanitation of houses where large numbers of people are wont to congregate. In the end the report of the committee and the recommendations it contained were adopted.

March 31st.

NORTHERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENT.)

Durham University.

OF the thirty candidates who entered for the Extra Arts Examination at Durham University a few days ago only eleven succeeded in satisfying the examiners. All students not graduates in arts who intend to graduate either in medicine or in science at this University are required to pass this examination, and it is somewhat astonishing how high the percentage of failures continues to be. Of the eleven men who passed on this occasion nine were prepared by the same tutor, indicating apparently that failure is due more to a want of knowledge as to the nature of the test than to a deficiency of education.

Dr. Arnison's Last Clinical Lecture.

The theatre of the Royal Infirmary, Newcastle-upon-Tyne, was well filled on March 24th by Dr. Arnison's colleagues and students to hear his last lecture. He chose for his subject what he called "some of his fads," and showed a large number of most interesting cases, including many in which aggravated club-foot had been treated by Phelps's operation, and the results were certainly most excellent. Dr. Arnison also showed a number of patients who had been treated with the actual cautery for ulceration of the cartilages of the knee-joint—some of them a good many years ago. Not only had the joints been cured, but the movements of them in many cases were perfect. Dr. Arnison has been connected with the infirmary for upwards of thirty years, and in retiring carries with him the regard and respect of his colleagues and the affection of his students.

Death of Mr. Beatty of Seaham Harbour.

On March 26th this much respected member of the medical profession died at the age of eighty-three years. Mr. Beatty during his long career at Seaham Harbour identified himself with nearly all the institutions of the town. He was surgeon to the hospital established by Lord Londonderry for the use of sailors, surgeon to the Seaham Harbour Volunteer Artillery, a permanent member of the committee of the Londonderry Literary Institution, &c. For some time Mr. Beatty had been ailing, but it was only a very few days before his death that his friends became seriously alarmed.

The Ingham Infirmary, South Shields.

Of the sum of £10,000 which it is proposed to raise for the enlargement of the Ingham Infirmary at South Shields, in commemoration of the Queen's long reign, upwards of £8000 has already been subscribed, and Mr. H. Griers, the architect, has been instructed to advertise for tenders for the erection of a new wing.

March 30th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Chair of Public Health for Edinburgh.

THE Scottish Universities Commission have issued amongst other draft ordinances one for the establishment of a separate chair of public health in the Edinburgh University. The chair is to be called the Bruce and John Usher Chair of Public Health, in recognition of the fact that its establishment has been made possible by the munificence of the two gentlemen whose names it bears. It is ordained that the occupant of the chair shall receive the annual income derived from the endowment, together with such sum out of the central fund of the University as may be necessary to bring the salary up to £600. The Court is given permission to increase the sum to be taken from the general fund. The fees of the students are, as in the other classes, to be paid into the general fund. The patronage of the chair is vested in the University Court.

The Edinburgh Royal College Golf Match.

The annual golf match between the Royal College of Physicians and the Royal College of Surgeons of Edinburgh, was played last week at Gullane in a hurricane of wind. The surgeons won by seven holes. The match always gives rise to considerable interest.

University of Aberdeen.

This is the first year in which the arts bursary competition and the medical, arts, and science preliminary examinations have taken place in the spring. The examinations opened on Saturday, March 27th. There were thirty-five entrants for the medical preliminary, five for the science, and 126 for the arts examinations. For the bursaries there were 166 competitors. The north tower at Marischal College extension has been completed, but to prevent petty depredations during the construction of the other buildings it has been found necessary to erect a paling, with a temporary gateway leading into the quadrangle. An association is being formed under the auspices of the General Council to raise funds for the further extension and better endowment of the University.

Day Nursery in Aberdeen.

A new institution in Aberdeen—a day nursery for children of working women—has been started in Princes-street, with accommodation for twenty or thirty children.

March 30th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Patients from Ireland at the Pasteur Institute.

THERE are just now three patients from Ireland being treated in Paris with the famous prophylactic for hydrophobia. The Athlone Board of Guardians, far from sending their patients to the local quack McGovern, have forwarded a recent case of dogbite to the Pasteur Institute under the personal charge of Mr. Shanley, their medical officer. The Local Government Board have written to know why the patient was sent in charge of the medical officer at a cost of £40, in addition to the three guineas per week paid to his substitute, instead of being given in charge to some subordinate official. The guardians have replied that their reason for sending their medical officer was the fact that the patient suffered from occasional epileptic fits. The Board have significantly remarked that the cost incurred in this case will come before the auditor for revision.

Trinity College, Dublin.

Dr. A. F. Dixon, Senior Demonstrator of Anatomy at the School of Medicine of Dublin University, has been appointed Professor of Anatomy at the University College of South Wales and Monmouthshire, Cardiff.

Belfast District Lunatic Asylum.

The medical superintendent of the Belfast Asylum, Dr. Merrick, has just issued his annual report for 1896. The daily average number of patients resident during the year has been 834, an increase of 52 over that of the preceding year; 273 cases were admitted during the year, 33 more than in 1895, and this is the largest number of admissions since the opening of the asylum. During the five years from 1892 to 1896 inclusive 1154 cases were admitted into this asylum, while for the five previous years, 1887 to 1891 inclusive, there were 997 taken in. There were 179 discharges during the year, and 44 deaths (all from natural causes), exactly the same number as in 1895. The general health of the inmates, notwithstanding the overcrowded state of the asylum, was satisfactory, and there were no cases of contagious or infectious disease. The gross expenditure for the year was £21 089 6*s.* 2*d.* The net cost per head for the year was £23 18*s.* 8*d.*

Queen's College, Belfast.

The chair of Natural Philosophy in Queen's College, Belfast, vacant by the resignation of Dr. J. D. Everett, has just been filled by the appointment of Mr. W. B. Morton, M.A. Professor Morton is an old Queen's College student, where he had a most distinguished career. He afterwards went to St. John's College, Cambridge, where he held a very high position, and graduated in the Mathematical Tripos of 1892; at the examinations for the B.A. and M.A. of the Royal University he was first of the first class, and in 1894 he gained the Junior Fellowship in Mathematical Science. Professor Morton's appointment is most popular at Queen's College, where for some time he has lectured as assistant to Dr. Everett.

The New President of Queen's College, Cork.

It is officially announced that Sir Rowland Blennerhasset has been appointed President of the Cork Queen's College. Sir Rowland Blennerhasset is well known in the political world, and some years ago he contested Galway in the Unionist interest. In medical and educational circles generally it was hoped that Professor Corby would have been the successful candidate, as he was regarded as possessing special qualifications which would have peculiarly fitted him for the position. The new President has entered on the discharge of his duties, but has not yet gone into residence, as it is understood that the late President is in such a critical state of health as to preclude his removal.

March 30th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

A Debate upon Appendicitis.

A LONG discussion, lasting over two meetings, upon the subject of appendicitis has been going on at the Society of Medical Officers of Hospitals as well as at the Surgical Society. The question for consideration was: How is it possible to know when to operate upon *appendicite à froid*—that is to say, during the period when there are no active symptoms and where the operation would be undertaken only with a view to the prevention of a relapse? M. Merklen narrated three cases of the disease which had occurred in the children of a family most of the members of which had already been the subjects of appendicitis. All the cases had occurred during an epidemic of influenza and were accompanied by a train of symptoms closely resembling those of influenza. He gave it as his opinion that in an attack of appendicitis no one could foresee the chances of relapse or its probable gravity. M. Bissaud reported a curious case, which he called "*appendicite-fantome*." In this case the patient presented all the classical symptoms of appendicitis, viz., a well-defined tumour in the right iliac fossa, constipation, and uncontrollable vomiting. Operation was deferred for some cause or other, and the patient suddenly developed an attack of left hemianæsthesia, which showed that the "appendicitis" was purely hysterical and the peritonitis spurious. She was cured by a psycho-therapeutic treatment. Later, however, a new attack of pseudo-appendicitis developed and the patient consulted another medical man, who upon operating found the appendix slightly congested. A patient of M. Rendu suffered from similar hysterical crises, with hiccough and profuse hæmatemesis. The appendix was removed and all the symptoms disappeared immediately, indicating that they had been reflex and dependent upon appendicular colic. M. Talamon had seen three similar cases. M. Le Gendre brought forward a table of twenty-five cases from which he drew conclusions favourable to surgical interference. M. Hayem related a case of uncontrollable vomiting, which for a long time he considered as a typical case of nervous vomiting following a febrile attack. He removed the appendix, which was thickened and bound down by adhesions, when the nervous vomiting which had hitherto resisted all treatment disappeared at once. M. Achard and M. Broca communicated the results of a bacteriological examination of the peritoneal effusion in twenty cases of appendicitis, in which suppuration had occurred and in which they had operated. In seventeen cases the bacillus coli communis was found—alone in seven cases, and associated with other pyogenic microbes in ten. For the most part these latter were streptococci; in one case the pneumococcus was present, and in the remaining three cases the bacillus coli was absent. M. Letulle described the lesions of appendicitis, and attributed them to a phlegmonous or gangrenous lymphatic infection secondary to a more or less chronic inflammation of the follicles. He distinguished two types—tuberculous appendicitis, and the appendicitis of Eberth or the typhoid variety. Both kinds were equally likely to end in perforation. In all cases of chronic appendicitis tuberculosis, he thought, should be suspected. The result of this long discussion appears to be that the prognosis in a case of appendicitis is very uncertain and that no one can foresee what may be the result of a first attack. The rules would seem to be: (1) Do not operate for one attack, but watch the patient; and (2) in case of a second attack operate even if the attack subsides favourably, and do not hesitate to remove the appendix *à froid*.

The Microbe of Baldness.

Great prominence has been given in the daily press to a discovery stated to have been made by M. Sabouraud, author of a well-known work on the biology of tinea, and superintendent of one of the laboratories at the Clinic of Dermatology. M. Sabouraud has succeeded in cultivating a microbe which he considers to be the cause of baldness, and which he has found to exist in great abundance in bald people. It invades the periphery of the hair follicles and brings about an influx of leucocytes, which choke the bulb and arrest its development. This is due to a special toxin which it secretes and which, according to M. Sabouraud, has a selective action on the hair follicle. A filtered culture injected into a rabbit is reported to have made all its hair come off.

The Abortion Case: the Sentence.

The interest of the week has centred in the trial of Dr. Boisleux and Dr. de la Jarrige for procuring abortion, the commencement of which I described in my letter of last week. The whole trial has been made the subject of sharp controversy. There were no convincing proofs that abortion

had been procured—in fact, the only evidence was that of the midwife, who said that Miss Thomson had come to her for that purpose, saying that medical men had told her that she was pregnant. The opinion of many is that had Dr. Boisleux been anxious to bring on abortion he would have used a simpler method than curetting and would not have operated in the presence of five witnesses, among whom were a servant and a cabman. The Court went into the question of all the deaths which had occurred after operation in Dr. Boisleux's practice for the last five years, although there was no question of abortion in any one of them. A number of witnesses who had been cured by him gave evidence in support of his skill, and everyone looked for an acquittal on the charge of abortion, although it was thought a conviction for involuntary homicide might have been secured. The jury, however, found the two defendants guilty of having procured abortion, and, although they recognised "extenuating circumstances," the defendants were condemned to five years' imprisonment. While sentence was being pronounced Dr. de la Jarrige was seized with a violent attack of angina, and for the space of an hour his life was in danger. The spectators in court burst out into cries of protestation at the verdict and hissed the jury. All the papers consider the sentence much too severe having regard to the weakness of some of the evidence and the irregularities in the indictment, and it is possible that the judgement will be reversed.

The late Dr. de St. Germain.

The death of Dr. de St. Germain is announced. The deceased was surgeon to the Hospital for Sick Children, and was well known for his works upon orthopædics and as the supporter of a method of rapid tracheotomy in which the operation was done in one stage. The method is known as that of St. Germain.

March 30th.

ROME.

(FROM OUR OWN CORRESPONDENT.)

Prevention of Cruelty to Children.

THE "Comitato Romano della Società pro Infantiâ" is one of our best institutions, and has this week begun its beneficent career with the rescue of the little waifs and strays of the city abandoned or neglected by their unnatural parents. The first "shoal" of these opportunely "enmeshed" little martyrs drifting down the side-currents of Roman life, to "sink or swim," was pitiable in the extreme—starvation, nakedness, and positive disease appealing to their deliverers with an eloquence beyond words. Most of them had in the first instance to be sent to hospital to recover from the lesions inflicted by hands in no sense parental—hands of the itinerant *impresario* or *exploiteur* disappointed at the proceeds of the day's begging. Many of them, indeed, will require years of careful tendance and rehabilitation to acquire normal development, physical and mental. The Ospedale del Bambino Gesù, the Ospedale di S. Spirito, the Asilo Torlonia, and other well-known institutions have generously allowed their resources to be strained by the "Comitato," but substantial support is required from the well-to-do citizen if the work of rescue is to keep pace with the claims upon it. Above all—and here every sensible Italian is at one with the "Comitato"—let nothing be given to the little mendicant, especially in money. Rather let the sum, however infinitesimal, be sent to the seat of the "Comitato" in the Via Tritone, where it will be duly acknowledged and properly applied. Our compatriots—so many philanthropic Italians assure me—are from their reckless freehandedness the unwitting mainstay of mendicancy in Italy and, *ipso facto*, the most formidable enemy of her societies for its suppression. Indolent almsgiving—the charity, that is to say, that takes no trouble to ascertain deserving cases or (the next best thing) to support the organisations that do—is, indeed, the besetting sin of the Briton abroad, creating far more mendicants than it ever relieves, making the beggar's business a paying one and (of course, unconsciously) becoming responsible for much of that "exploitation of infancy" whose tragic results the "Comitato Romano" and other *comitati* throughout the kingdom are doing their best to mitigate, if not to annul.

The Bacillus of Yellow Fever.

As stated in THE LANCET,[1] Professor Giuseppe Sanarelli of the University of Siena, who now directs at Montevideo the Istituto d'Igiene Sperimentale, of which he was the founder, had, as the result of a year's special study, satisfied himself that he had discovered the bacillus of yellow fever. His researches he embodied in a monograph which has for some time been in the possession of the Accademia Medica di Roma, that body being thus empowered to protect his claim to priority should that claim in the interval have been challenged. The supplementary studies by which he has sought to check the laboratory and clinical work leading up to his discovery are now completed, and the whole series—including the substance of the provisional monograph aforesaid—will be published in three successive *fascicoli* of the Annali dell' Istituto Pasteur. Coincidently with the appearance of the first of these *fascicoli* (that is, within a few weeks' time) he will deliver before the Montevidean Society of Medicine a lecture, accompanied by illustrative preparations, in which the nature of his discovery and the successive stages by which it was arrived at will be fully set forth.

[1] THE LANCET, Jan. 9th, 1897, p. 142.

Criminal Anthropology: its Fifth International Congress.

Preparations are already on foot to make the Italian intervention at this Congress as effective as possible. It will be held in 1901 at Amsterdam—not, as announced in some quarters, at The Hague—and on certain days, yet to be fixed, in the month of August. Italy, who justly claims the "science" (so-called) as her own, will be represented by *savants* who, besides holding university chairs specially devoted to it, have the further advantage of ventilating their views in Parliament in the discussions evoked by the estimates of the Ministers of Education and of Grace and Justice. Such are, for instance, Professor Napoleone Colajanni of the University of Naples and Professor Enrico Ferri of the University of Rome, both of whom have been elected to the new Chamber of Deputies—the former for his old seat of Castrogiovanni, and the latter for Gonzaga.

March 27th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Antitoxin in Diphtheria.

DR. ZUPPINGER has published a highly interesting report on the antitoxin treatment of diphtheria in the Crown Prince Rudolf Hospital for Children during 1896. In the course of the year there were in all 168 children under treatment for diphtheria, two of whom remained in hospital at the close of the year. Of these patients 136 (i.e., 82 per cent.) recovered, and 30 (i.e., 18 per cent.) died. Eight of the children were admitted in a hopeless condition and died within twenty-four hours, one suffered also from tuberculous cachexia, and one died from pneumonia after scarlet fever; if these cases were deducted from the preceding figures the general mortality would be only 12 per cent. From 1894 to 1895 the death-rate for diphtheria in this hospital fell 16 per cent., and from 1895 to 1896 it fell a further amount of 7 per cent. In slight cases quantities of serum containing 1000 antitoxin units were at once injected; in severe cases the amount was raised to 2000 units, and the injections were repeated within twenty-four hours if no mitigation of the diphtheritic symptoms occurred. As a rule, from 1000 to 5000 units were injected in the course of the first day. Dr. Zuppinger divided the patients into four groups: (1) diphtheria of the pharynx, of which there were 91 cases with 5 deaths, or a mortality of 5·5 per cent.; (2) diphtheria of the nose and pharynx, of which there were 24 cases with 9 deaths, or a mortality of 37 per cent.; (3) diphtheria of the pharynx and larynx, of which there were 48 cases with 16 deaths, or a mortality of 33 per cent.; and (4) primary diphtheria of the nose, of which there were 3 cases. The first group included 83 patients—i.e., one-half of the general total—who suffered from diphtheria of the pharynx in the fibrinous form; all of them recovered, 7 of them being children who were not treated with antitoxin. The remaining 3 children of this group suffered from the phlegmonous form of the disease, one of them also from the septic form. The phlegmonous cases were characterised by glandular swelling, diffuse œdema of the neck, inflammation of the pharyngeal structures, and extensive dense exudation on the tonsils and uvula. Within the first twenty-four hours from 3000 to 4000 antitoxin units were injected, after which the symptoms of incipient degeneration of the cardiac tissues disappeared, even in two

instances where death seemed to be inevitable The great value of antitoxin in these cases might be inferred from the fact that none of these patients developed affections of the larynx, and Dr. Zappinger was of opinion that antitoxin is by far the most efficacious remedy against diphtheria. Of the children who recovered two-thirds showed no rise of temperature after the injections. In 47 cases Löffler's bacilli were found, in 32 cases they were mixed with streptococci and staphylococci, and in 12 cases no bacilli could be discovered, notwithstanding the existence of clinical symptoms of diphtheria. The 24 cases comprised in the second group included 9 patients suffering from the phlegmonous form of the disease and 2 suffering from the septic form. The latter when admitted showed symptoms of the hæmorrhagic diathesis as well as of cardiac degeneration, and they died on the first day; 5 of the phlegmonous cases recovered. The remainder of this group suffered from the fibrinous form of diphtheria of the pharynx and nose; 2 of them died from pulmonary complications, and 1 from parenchymatous degeneration of the myocardium. In the third group, consisting of 48 cases of diphtheria of the pharynx and larynx, the therapeutic value of the antitoxin treatment was strikingly manifested. On admission 16 of these children suffered from stenosis of the larynx, which disappeared after the injections; 14 of them recovered and 2 died from broncho-pneumonia. Among the remaining 32 children of this group primary tracheotomy was performed in 2 cases, secondary tracheotomy in 4 cases, and intubation in 26 cases; 14 of them died. Primary tracheotomy was performed because intubation was impossible on account of the swollen state of the larynx; both these children died from pneumonia Of the 3 cases of primary diphtheria of the nose constituting the fourth group 1 occurred after measles; antitoxin was injected and the symptoms disappeared. During the first year the general death-rate was 54 per cent., from the first to the second year it was 47 per cent, from the second to the third year 25 per cent, from the third to the fifth year 13 per cent., from the fifth to the seventh year 6 per cent, and from the seventh to the twelfth year 3 per cent. As a prophylactic measure 54 children were injected with from 300 to 1000 units.

Carcinoma of the Rectum.

Dr. Funke, assistant to Professor Gussenbauer, has published an account of 266 cases of carcinoma of the rectum, of which 156 were operated on and 40 died, the mortality being therefore 24·4 per cent. The patients included 181 males and 85 females. In a great many cases the disease followed habitual constipation; in two cases it seemed to have grown on the base of syphilitic scars. It occurred most frequently between the fiftieth and sixtieth years of life; but there were also patients at the age of fifteen and over eighty years. Colloid carcinoma—the most malignant form—occurred before the age of thirty years, and the medullary and fibrous forms prevailed between the fortieth and sixtieth years of life. Among the 266 cases of carcinoma there were 12 epithelial, 162 adenoid, 64 annular, 7 carcinomata of the sigmoid flexure, and 21 colloid carcinomata. In annular carcinomata resection is to be performed only if there are no enlarged lymphatic glands. Temporary resection of the os sacrum gives very easy access to tumours situated high up in the rectum and never causes necrosis of the bone.

Lepra Tuberosa.

A case of lepra tuberosa maculosa et anæsthetica was exhibited by Professor Kaposi at the last meeting of the Vienna Medical Society. The disease commenced some nine months ago with nodules on the left carpal articulation; the nodules were of the size of a pea, they were reddish-brown in colour, and resembled the so-called cutaneous papules in syphilis, for they had a central atrophic depression and crusts. There was hyperæsthesia round the areas of cutaneous anæsthesia, a circumstance which showed that there was an affection of only the extreme peripheral nerve ends. No bacilli have hitherto been found.

Medical Fees.

At the last meeting of the Medical Chamber the following scale of fees was agreed to: A day visit, 3 gulden (about 5*s.*); an evening visit, 4 gulden (6*s.* 8*d.*); a night visit (without carriage), 6 gulden (10*s*); a consultation, 10 gulden (16*s.* 8*d.*); one hour, 5 gulden (8*s.* 4*d.*); a visit at a time fixed by the patient, 5 gulden (8*s.* 4*d.*); for each additional patient seen in a house, 1 gulden (1*s.* 8*d.*). The visits are to be paid for at once; in cases of very poor people the medical man may make a lower charge at his discretion.

March 21st.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Medical Chambers in Hungary.

THE question whether medical chambers should be created in Hungary is just now greatly agitating the minds of the medical men of this country. The Home Office had prepared a scheme with this object, but before bringing it as a Government proposal before Parliament Minister Perczel very wisely decided to ascertain the views of the Hungarian medical profession. He therefore sent a draft of the scheme to all the medical societies of the country, requesting them to give it their consideration and subsequently to transmit their opinions to the Home Office. Some extracts from the proposed measure will best give an idea of the manner in which it may be expected to work. "Section 1. The medical chambers are established for the purpose of promoting public health and protecting the interests of the medical profession. Section 2. The number, distribution, and locality of the chambers are to be settled by the Home Office. Section 3. Every medical practitioner, active members of the military service excepted, is required to join the medical chamber of his district. ..... Section 15. The President and the other office-bearers of the chamber are elected by secret voting at the general meeting and are appointed for a period of three years. ..... Section 19. The council of honour has to decide disputes occurring between medical men and complaints raised against practitioners, and has to settle questions of medical ethics. Section 20. This council of honour is empowered to sentence the members of the chamber: (1) to be admonished, (2) to be censured, (3) to be fined a sum not exceeding 500 crowns (£20), and (4) to be restrained from exercising their rights in the chamber for a period not exceeding two years." This question of medical chambers is being much discussed not only in the medical but even in the lay press. The profession is divided into two parties, one of which is in favour of rejecting the scheme of the Home Office and is altogether opposed to the creation of medical chambers, but recommends a union of the profession on a system similar to that of the British Medical Association, whilst the other party looks upon the establishment of medical chambers as the one possible and effective safeguard against the further lowering of the social status of the profession. The opponents of the measure point to the fact that most countries of Europe can do without medical chambers, and that even Great Britain, the country which accords a better social standing to its medical men than any other country in the world, has no institution of the kind. On the other hand, those who are in favour of the chambers are of opinion that only such institutions as are founded on a legal basis can have power to proceed against a man guilty of infamous conduct in a professional respect, and they remind their opponents that medical offenders in Great Britain cannot be adequately dealt with by the British Medical Association, but have to be brought before the General Medical Council, on which the requisite powers have been conferred by Act of Parliament.

March 27th.

"A VERY GRAVE SCANDAL."—For a long time the propriety of lodging imbeciles of a certain class in workhouses rather than asylums has been debated The Eastbourne magistrates had to deal with a more difficult contingency. A prisoner before them would, it was feared, become a dangerous lunatic. The superintendent of the East Sussex Asylum telegraphed that they had no room for the case. Matters were very grave, and on the man's remand an urgent note was sent to the asylum pointing out the gravity of the case. The reply was, "No vacancy; shall decline to admit." So the man was sent to the workhouse, where there were no means of proper restraint. Since then drafts have been made from the East Sussex to other asylums, the accommodation having only just become available. Without endorsing the remark with which this note is headed we may be permitted to inquire—In case the man ran amok at the workhouse and killed someone, who would be responsible?

Obituary.

CHARLES ELLIOTT LEOPOLD BARTON HUDSON,

F.R.C.S. ENG., L.R.C.P. LOND., ETC.,

ASSISTANT SURGEON TO THE MIDDLESEX HOSPITAL AND TO THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.

THE abrupt termination by death of a promising career is at all times pathetic and saddening, for that which comes as the natural and well-earned rest to the veteran seems to our limited vision hard and harsh in the case of those who are called away in the plenitude of vigour and who have barely crossed the threshold of the portal of fame. Thus has it been with the young surgeon whose death we chronicle to-day, with feelings rendered more poignant by the fact that for several years past he has been a valued coadjutor in the work of THE LANCET, and if therefore we dwell rather fully upon the comparatively uneventful details of his life we think that the account will enable our readers to understand how full and varied such a life may be, although, perchance, he who lived it may not have become known to the larger world outside.

Leopold Hudson came of a family whose genealogy could be traced to Saxon times, and of whom many generations had resided in Ireland. Thus his great-grandfather, Dr. Jonathan Hudson, of Cork, was a physician of some repute and author of two works on the "Philosophy of Medicine," and his eldest son, James Elliott Hudson, also intended for the medical profession, abandoned this pursuit in his student days for that of the Army, serving in the Peninsular and other campaigns. Captain Hudson retired from the Army at the close of the war, and shortly afterwards married, his fourth son, born in 1818, having as one of his sponsors Leopold I., the King of the Belgians, and receiving the names of James Elliott Leopold. This son, together with an elder brother, was rescued from the wreck of the *Colborne* off the coast of New Brunswick, at the mouth of the St. Lawrence, in October, 1838. Besides these youths, only ten were saved out of fifty-four persons on board, the victims including Captain and Mrs. Hudson, with nine of their children, Captain Hudson having embarked for Canada to assume the military governorship of a district in New Brunswick. James Elliott Leopold, who narrowly escaped with his life from the privations and injuries received at this shipwreck, returned to England in 1842, and eventually settled at Bungay, Suffolk, where he lived until his death in 1890. His second son, Charles Elliott Leopold Barton, was born on Dec. 27th, 1862. Educated at home, and intended for the medical profession, he was articled to Dr. Adams of Bungay, and in his eighteenth year entered in October, 1880, as a student of the Middlesex Hospital, with which his whole subsequent career came to be identified.

The exceptional brilliancy of his career as a student speaks well for the soundness of his home training, but he had also great natural gifts, being quick to learn, and endowed with a good memory as well as with much facility and accuracy of expression. He soon distanced most of his compeers, carrying off prizes in nearly every one of the classes he attended from his first to his final year, and also the Governors' prize in 1882-3, and the first Broderip Scholarship in 1883-4. When still a student he was selected in 1882 to be Demonstrator of Physiology, and thus early showed that he had as much aptitude in imparting knowledge as he had in acquiring it. Indeed, he excelled as a teacher, and in the years of struggle for existence which confront most young men who elect to pursue the career of London consultants he gained many pupils who are unanimous as to his teaching gifts. In the medical school he taught pathological histology for some years, whilst during the past two years he had been holding the office of surgical tutor. When the Residential College was founded in 1887 he was selected as its first Warden, and his position here enabled him to hold special tutorial classes for the students under his charge. His attachment to his hospital was heart-whole and never relaxed, and the keenness with which he threw himself into any project on behalf of the students was marked throughout. During his studentship he was a constant attendant at the Students' Medical Society, reading papers and sharing in debates, for he was a ready and fluent speaker, and it was owing mainly to his initiative that the several clubs and societies in the school were amalgamated in 1891-92. He was chosen as honorary secretary of the Amalgamated Clubs, and it was in great measure due to him (aided by Dr. H. C. Thomson and Mr. C. Reissmann) that the *Middlesex Hospital Journal* was started this session. There had been a proposal that the Medical Society (of which he was then President) should take some steps to publish its proceedings, and from this came the idea of founding a hospital journal. During his long illness he often discussed the affairs of this journal and made suggestions for its conduct which were of much practical value.

As regards his hospital appointments, Leopold Hudson in 1884-85 held the offices of house physician to Dr. Cayley and of house surgeon to the late Mr. Hulke. After this he went to Paris for a short time to study there, and then was appointed surgical registrar to the London Temperance Hospital. In 1887 he succeeded Dr. Kingston Fowler as pathologist and curator at the Middlesex Hospital, and for three years did good work in this department. Meanwhile (in 1880) he had obtained the Fellowship of the Royal College of Surgeons of England, and when a vacancy occurred in the office of surgical registrar he naturally was selected to fill it. This appointment he held for four years (from 1890 to 1893), his annual reports being evidence of his industry in this post. In 1893 he became a candidate for the office of surgeon to the Throat and Ear Department, which had become vacant by the death of Mr. A. Hensman, and his appointment to this office secured for him the position on the staff of his hospital for which he had legitimately aspired. In 1895 he was also elected assistant surgeon. He had, moreover, shortly before his staff appointments at the Middlesex Hospital been elected assistant surgeon to the Hospital for Sick Children, Great Ormond-street. His time and energies were thus fully occupied in hospital duties and in teaching; but nevertheless he undertook other duties, the most important being that of secretary to the Royal Commission on Tuberculosis, which held sittings from 1890 to 1895, and for which he worked *con amore*. We have already mentioned his connexion with THE LANCET, which commenced nearly ten years ago, one important part of his work consisting in reporting the debates of the various medical societies, where his habitual attendance made him familiar to many.

Apart from such purely professional work Leopold Hudson had many other interests. He was a keen politician, and even in his student days his ready speech was of no small assistance in election contests, when he worked hard for his "party." He also held the commission of Surgeon-Captain in the Middlesex Yeomanry Cavalry, and had been teacher of volunteer ambulance instruction. He was, moreover, a zealous Freemason. At the beginning of the year 1895 he married Miss Ethel Vaughan Morgan, daughter of Mr. Septimus Vaughan Morgan, and established himself in Harley-street, having fairly embarked on a career which promised to be full of happiness and prosperity. He leaves two children—both sons—the younger born on Feb. 6th of this year. The particulars of the illness which has unhappily brought so promising a career to a close must be briefly told. It commenced in September, 1896, with some obscure symptoms of sensory and motor disturbance in the lower extremities following on chill and fatigue. But he was enabled to resume his hospital duties in October, only, however, to be attacked in a few weeks' time more acutely with paraplegia, which at one time caused great anxiety. From that time till his death he never left his bed, yet throughout retained his habitual cheerfulness and sanguine disposition, looking forward to the time when he would once more be enabled to resume that activity in which his soul delighted. Nor was this hope without some justification, for he was gradually regaining power in his limbs when, on March 24th, a severe attack of abdominal pain, followed by headache, made him feel and express the thought that his days were numbered. But he met this blow with admirable fortitude and composure, in the same spirit as he had borne the long and weary illness through which he had been passing. Hemiplegia and coma supervened, and he died on the morning of the 29th, in the thirty-fifth year of his age. Throughout the whole of his illness he was devotedly attended by his friend Dr. Edward Semple and by Dr. Cayley, as well as by Dr. Hughlings Jackson, Dr. W. S. Colman, and Dr. James Taylor. The post-mortem examination showed that the immediate cause of death was cerebral hæmorrhage, but that the spinal cord had so far recovered as

to present no obvious morbid change. It was difficult to account for the hæmorrhage, as the cerebral vessels were perfectly normal. There were numerous calculi in the renal pelves, both kidneys being much congested and the right showing evidence of previous suppurative nephritis.

Leopold Hudson, whose overflowing energy, together with his ability and industry, are exemplified in the bare record of his life, was one of those whose nature might perhaps be best expressed by the old-fashioned term "winsome." It was impossible for those who knew him to refrain from liking him, and no one could feel surprised at the affection he gained wherever he went. He was always genial and buoyant, retaining the fresh qualities of youth in his years of maturity. It is no wonder that he was popular with students, for he seemed always to thoroughly identify himself with their modes of thought and feeling. Doubtless those who thus came under his influence will remember him as much for the interest he took in their pursuits and pleasures as for the assistance he rendered them in their work. Amongst his other characteristics may be mentioned his optimistic view of life and his versatility in his own spheres of activity. For he had in him something of that enthusiastic spirit, rare enough in this sober-minded world, which carries its possessor through many a difficulty and enables him to undertake with cheerful confidence and zeal many a new duty for the mere pleasure of its opening up fresh avenues and interests. His, too, was a generous nature. The writer of these lines has known him first as a pupil, then as a friend and colleague, and cannot recall his ever saying an unkind word, nor did he seem ever to harbour an unkind thought of anyone. His path through life was therefore freed by his very nature from obstacles that to many seem insurmountable. He had, too, the satisfaction of securing a position which he had thoroughly earned—a position that would, had he lived, have been doubtless justified by the production of original work. The time and opportunity had arrived when this might soon have been expected of him; but he has died like one in view of a land he was not permitted to enter. But if therefore his name had not become as widely known as it surely would have been had life been spared him, yet with those who did know him there will rest no memories but those which are pleasant impressions of a bright, happy, and enthusiastic nature.

A portion of the Burial Office was said in the Church of St. Paul, Great Portland-street, on Thursday, April 1st. The coffin, covered with a purple pall, was placed in the middle of the nave, and the office was said by the Rev. F. J. Brindley, a former chaplain to the Middlesex Hospital, while a body of nurses took the place of a choir. A large number of colleagues and friends of the deceased were present, including (amongst others, for the list is necessarily imperfect) Sir Ralph Thompson (chairman of the Middlesex Hospital), Dr. Cayley, Dr. Colman, Dr. Coupland, Mr. A. Clark, Dr. W. Duncan, Mr. Pearce Gould, Dr. F. J. Hawkins, Mr. Henry Morris, Mr. Edmund Owen, Dr. W. Pasteur, Dr. E. Semple, Mr. W. G. Spencer, Mr. Stonham, Dr. A. Voelcker, Dr. Wethered, Dr. Essex Wynter, and Mr. Thomas Wakley, jun., representing the Editors, and Dr. Cholmeley the staff, of THE LANCET. There were also present many members of the Middlesex Yeomanry and a large contingent of students. At the conclusion of the service the body was removed to Woking for cremation.

EDWARD BOWLES CROWFOOT, M.B. LOND., M.R.C.S. ENG., L.S.A.

A PRACTITIONER of a most worthy type has passed away in the person of Edward B. Crowfoot, of Beccles, Suffolk, youngest son of the late W. E. Crowfoot, F.R.C.P., of Beccles. He was born on Oct. 21st, 1845, and was educated at Fauconberge School, Beccles, and afterwards at Uppingham. He received his medical education at St. Bartholomew's Hospital, of which he was house surgeon in 1869. He obtained the diplomas of M.R.C.S. Eng. and L.S.A. in 1867, and the M.B. degree at the London University in 1868. He joined his father and brother in practice at Beccles in 1870, and was at once appointed medical officer to the Beccles district of the Wangford Union, a post which he held until his death on Feb. 13th, 1897. He was also medical officer of health of the borough of Beccles and surgeon to the Beccles Hospital. He was a hard-working, conscientious man, ever ready to give his services to rich and poor alike, deeply interested in his profession, and of a quiet and retiring manner. The funeral took place on Feb. 17th, and was largely attended by all classes anxious to show respect to one whom they loved and honoured, a true and real friend to all who knew him.

Medical News.

THE VICTORIA UNIVERSITY: FACULTY OF MEDICINE.—At examinations in March the following candidates were successful in the subjects indicated:—

FINAL EXAMINATION.

Part I.—E. L. Anderson, University College; **W. J. S. Bythell** H. M. Cockcroft, Herbert Davies, J. E. Healey, and **W. A. Helm**, Owens College; R. B. Jones, University College; Robert Kelsall and James Kemp, Owens College; F. T. A. Lovegrove and H. A. Mawdsley, University College; John Milne, Thomas O'Neill, William Sankey, J. H. Sheldon, and A. T. Sissons, Owens College; Harry Stansfield and Joshua Williamson, Yorkshire College; and D. S. Wylie, Owens College.

Part II.—H. S. H. Callum, Yorkshire College; †Harold Coates, *J. S. Dockray, O. B. Goldschmidt, †Harry Hamer, W. F. Jackson, and †K. H. Jones, Owens College; G. G. Lawson, University College; Henry Mackennal, Owens College; F. E. Marshall, University College; †A. B. Smallman, Owens College; †J. E. Smith, University College; †F. E. Taylor, Yorkshire College; and H. C. Woodhouse and William Wright, Owens College.

* Awarded First-class Honours.
† Awarded Second-class Honours.

SECOND EXAMINATION.

Anatomy and Physiology.—G. P. Alderson, University College; T. P. Allen, Owens College; W. J. W. Anderson and J. D. Andrews, Yorkshire College; W. E. Bamber and H. N. Bridge, Owens College; W. H. Broad and P. A. Browne, University College; A. H. Capamagian, Owens College; Godfrey Carter, Yorkshire College; *Walter Crabtree and C. H. Dawson, Owens College; S. S. Depree and R. J. Ewart, University College; T. L. Fennell, Owens College; C. H. Ferguson, University College; A. E. Finney, Charles Garner, and Archer Greenwood, Owens College; C. H. Greenwood, Yorkshire College; I. W. Hall and E. F. Hill, Owens College; H. C. R. Hime, A. E. Horsfall, and C. E. Horsfall, Yorkshire College; S. K. Hutton, Owens College; W. A. Illingworth and F. W. Johnson, Yorkshire College; L. R. Lempriere, Owens College; Hugh Lett, Yorkshire College; S. F. Linton, University College; C. J. N. Longridge, Owen's College; J. W. Miller, University College; W. H. Morrison and Armitage Morton, Yorkshire College; R. A. Needham, Owens College; A. S. Parkinson, Yorkshire College; A. E. Rayner, C. E. Silvester, Harry Slater, and Herbert Terry, Owens College; T. J. Thomas, University College; A. R. Thompson, Yorkshire College; Harry West, University College; and J. D. Windle and P. R. Wrigley, Owens College.

Materia Medica and Pharmacy.—J. W. Aldred, Owens College; H. M. Birkett, Yorkshire College; *Walter Crabtree, Owens College; S. S. Depree, University College; T. L. Fennell, R. F. Ferris, F. H. Flack, J. P. Good, E. F. Hill, H. S. McLellan, B. C. Middleton, and R. F. Moore, Owens College; W. H. Morrison, Yorkshire College; William Parker, J. H. Stephens, and J. W. Watson, Owens College; Harry West, University College; S. C. Wilkinson, Yorkshire College; and Ernest Young, Owens College.

* Awarded the University Scholarship in Medicine.

UNIVERSITY OF ST. ANDREWS.—The following registered medical practitioners, having passed the required examinations, had the degree of Doctor of Medicine conferred upon them on March 26th, 1897:—

Bunn, Charles Grinling, M.R.C.S. Eng., L.R.C.P. Edin., L.S.A. Lond., London.
Buxton, Edward, M.R.C.S. Eng., F.R.C.S. Edin., M.R.C.P. Edin., D.P.H., Liverpool.
Dixon, Thomas Arthur, M.R.C.S. Eng., L.R.C.P. Edin., Surgeon-Major Army Medical Department.
Garstang, Edward Morton, M.R.C.S. Eng., L.R.C.P. Edin., Bolton.
Hadwen, Walter Robert, M.R.C.S. Eng., L.R.C.P. Lond., L.S.A. Lond., Gloucester.
Hoffman, Arthur Herbert, L.R.C.P. Edin., L.R.C.S. Edin., L.F.P.S Glasg., London.
Jackson, Thomas William, M.R.C.S. Eng., L.R.C.P. Edin., L.S.A. Lond., Chorley.
Mallagh, Alexander, L.R.C.P. Edin., L.R.C.S. Edin., Barrow-in-Furness.
Williams, Howell, M.R.C.S. Eng., L.R.C.P. Edin., Richmond, Yorks.
Williams, Roland Philip, L.R.C.P. Edin, L.R.C.S. Edin., D.P.H., Holyhead.

AT the annual meeting of the Sanitary Institute, held on March 24th, H.R.H. the Duke of Cambridge, K.G., was re-elected President. Professor W. H. Corfield, M.A., M.D. Oxon., F.R.C.P. Lond., and Mr. Thomas Salt were elected Vice-Presidents to fill the vacancies caused by the deaths of Sir George M. Humphry of Cambridge and Sir J. Russell Reynolds, late President of the Royal College of Physicians of London. The report of the Council on the year's work was read.

BATH RURAL DISTRICT.—Mr. Charles Harper, medical officer of health for Bath Rural District, has just issued his annual report for 1896. The population of the nineteen parishes of the union, estimated to the middle of 1896 was 24,652. There were 304 deaths during the year, equal to a death-rate of 12·33 per 1000, which was the lowest death-rate recorded for the last five years. The births during the year were 750, giving a birth-rate of 30·42 per 1000.

THE INSPECTION OF MEAT AT CARDIFF.—At their meeting on March 8th the Cardiff Town Council, acting upon the report of the health and port sanitary committee, appointed Mr. Charles Moir, veterinary surgeon, to be meat inspector at a salary of £300 per annum. It was stated that it was the intention of the Bute Company to provide abattoirs together with refrigerators for the carcases. Mr. Moir will devote the whole of his time to the duties of the office.

LUNATIC ASYLUMS IN DORSETSHIRE.—At the March quarterly meeting of the Dorsetshire County Council the chairman of the asylums committee announced that there had been a profit of £580 on the working of the new lunatic asylums for the quarter, and it was hoped that a profit of more than £1200 would be handed over to the finance committee at the end of the six months. There were 710 patients in the asylum, and the maintenance rate was 8*s.* 9*d.* per week.

EMPLOYERS' LIABILITY IN SEWERAGE WORK.—At the Aldershot county court on March 17th his honour Judge Lushington, Q.C., gave a verdict for a widow and her two children for £178 15*s.* in a claim arising out of an accident which occurred on some sewerage work. It appeared that a firm of contractors had to remove a drain near the Royal Artillery Barracks. This drain lay at a depth of 15 ft., and one of the labourers working at that depth was buried alive. The trench was only shored for 5 ft., and that, it was alleged, imperfectly; the remaining 10 ft., in sandy and "made" soil, was said to be quite unprotected.

MEATH HOME FOR EPILEPTICS.—The fourth annual report of the Meath Home of Comfort for Epileptic Women and Girls at Godalming states that the work of the institution was carried on quite satisfactorily during 1896. There were fifteen new admissions and twelve of the inmates left. The committee deplore the loss which the home sustained by the death of Sir J. Russell Reynolds, who was one of its firmest friends, and they make an urgent appeal for increased support, as the subscriptions and donations during the year only amounted to £161 4*s.* The Countess of Meath, who founded the home, has transferred the ownership to four trustees, she herself being one of them.

BRISTOL NURSES' TRAINING INSTITUTION.—The annual meeting of the Bristol Nurses' Training Institution was held on March 16th. The report stated that there were forty nurses on the staff during the past year, and that they did 1188 weeks' work on 451 cases, of which 257 were in Bristol, Clifton, and the immediate neighbourhood. Nine pupils were in training, six of them on a three years' course. The nurses' earnings amounted to £2204. Financially the institution was prosperous, notwithstanding the heavy outlay necessary to start so many pupils on a three years' course; in fact, there was a favourable balance of £82. During 1896 the subscriptions amounted to only £16, so that the institution was practically self-supporting.

BRISTOL HOSPITAL FOR SICK CHILDREN AND WOMEN.—The annual meeting of the Bristol Hospital for Sick Children and Women was held on March 20th, under the presidency of the Duke of Beaufort. The report stated that 786 children had been treated as in-patients; of these, 74 were in the hospital on Jan. 1st, and 712 new cases have been admitted during the year; the number of women in-patients has been 33, whilst 1135 women and 2937 children have been treated as out-patients. The expenditure exceeded the income by £478, and the accumulated deficit of successive years amounted to £668, of which a sum of £260 was in the balance of the Convalescent Home expenses. At the end of the meeting the President of the hospital presented Miss Combe with a silver teapot and a purse of fifty guineas subscribed by the committee, and a leather bag from the nursing staff. He referred to the fifteen years' faithful service Miss Combe had rendered in the position of matron, and regretted her retirement.

MR. A. A. C. SWINTON will read a paper on Recent Investigations Relating to x Ray Work at the Camera Club on the evening of April 12th. In addition to numerous experimental tubes, some of which will be shown in action, Mr. Swinton will exhibit a new and improved form of Crookes's tube that he has designed, which has an adjustment whereby, without altering the vacuum, the penetrative value of the x rays can be varied at will.

BRISTOL ROYAL INFIRMARY.—The annual meeting of the Bristol Royal Infirmary was held on March 23rd, under the presidency of Sir Charles Cave. The report showed that in 1896, as compared with 1895, there was an increase of 107 in-patients, 678 out-patients, and of 10,026 out-patients' attendances, the totals for 1896 being as follows: In-patients, 3210; out-patients, 34,107; and out-patients' attendances, 65,771. The ordinary income had fallen short of the expenditure, the debt was now increased to £9651, and the chairman stated that unless the subscriptions were increased the committee would have to consider the desirability of either closing two or three of the wards or selling some of their investments. He also remarked that the establishment of a convalescent home in connexion with the hospital and infirmary had the committee's hearty approval, but he hoped that it would not interfere with the subscriptions of the older charitable institutions. In the course of his address the chairman said: "There was no doubt that during the past few years there had been a tendency amongst those who subscribed to look upon their subscriptions as a sort of insurance rather than as an absolute free gift to the charity, and the consequence was that in some cases the infirmary and its benefits had been claimed by those who could not be called poor or destitute individuals. This was to the manifest disadvantage of the infirmary, for they were often pressed for room, especially in the out-patient department, and if those who could afford to pay for their medicines and medical help at home came there and crowded out those who were really poor and destitute the infirmary was not doing the work it was intended to do."

INFIRMARY MEDICAL SUPERINTENDENTS' SOCIETY.—The annual general meeting was held at the Inns of Court Hotel on March 27th. Mr. W. E. Boulter (Woolwich) was elected President for the ensuing year, Dr. M. M. Bowlan (St. George-in-the-East) secretary, and Dr. F. S. Toogood (Lewisham) treasurer. Mr. H. C. Harris was elected an honorary member. At the dinner which followed Mr. Walter Burney proposed "The Medical Superintendents' Society," and referred to its formation in 1887 and the great work it had performed in binding the members together for their mutual good. Mr. D. M. Forbes (Shoreditch) responded, and said that in his thirty years of experience as a medical superintendent there had been a gradual improvement in the administration of infirmaries, until at the present time they were patterns of good management and economy, and served as examples of what well ordered hospitals should be. These good results had been effected by having medical men as the responsible heads of these institutions, whose special knowledge in hospital construction and management had been of the greatest possible assistance to the designers of the hospitals. Mr. Forbes maintained that it was to the infirmaries that science was indebted for the great advance in hospital construction, while general hospitals being under lay control were very far behind the times. The toast of the retiring officers was responded to by Dr. Toogood, who spoke of the attempts which were being made by a well-known section of noisy female agitators to capture the management of their institutions. The noise appeared to have frightened, or the sex to have captivated, some of the higher local government officials. THE LANCET, he was proud to say, had always supported the supremacy of the medical superintendents.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Midwives Registration Bill.

THE order for the second reading of the Midwives Registration Bill was reached after midnight on the Thursday, March 25th, sitting of the House of Commons, but objection was taken to it, and in accordance with the rules of procedure the order was postponed.

Infant Life Protection Bill.

The House of Lords on Monday, March 29th, gave a second reading to the Bill for the better protection of infant life, introduced by the Earl of Denbigh at the instance of the London County Council Speaking generally, the Bill follows the recommendations of the Committee of last session; but in the course of debate Lord Denbigh made it known that he will be ready to accept any amendments calculated to make the measure more workable.

Metropolitan Poor-law Children.

When, on Friday, March 26th, the Government asked for a vote on account for the Civil Services, there was a long debate on the proposal of the Local Government Board to set up a new authority for the care of certain classes of pauper children in London.—Sir Albert Rollit, who introduced the subject, argued that this scheme for taking care of the sick, feeble, and imbecile children would mean the creation of a new central board, the building of new institutions, special hospitals, seaside convalescent homes, and the enlistment of an army of new inspectors, all of which must be very costly; and he asked why should not the work be allowed to proceed on the old lines, with the coöperation of the guardians and under the supervision of the Local Government Board.—Sir Walter Foster took the view that as boards of guardians had improved very much in recent years they should, instead of having responsibilities withdrawn from them, be encouraged to go on with their improvements. He suggested that there should be a sub-department of the Local Government Board charged with the care of children, sick as well as healthy, which would be able to do a great deal not only for the education of the children, but also in the way of stamping out those diseases which had been a scandal to Poor-law administration.—Mr. T. W. Russell, Parliamentary Secretary to the Local Government Board, pointed out that a departmental committee was now inquiring into the re-organisation of the Local Government Board, and said he was certain that valuable results would follow its report.—Mr. Samuel Smith spoke in praise of the boarding out system in vogue in Scotland.—Mr. Chaplin, President of the Local Government Board, replying to these and other speeches, said he had elected to proceed by order instead of by legislation for the reason that he was afraid that, in the present condition of public business in the House of Commons, if he relied upon legislation in all probability he would never have had an opportunity this session of dealing effectively with the question at all. He admitted that this method of procedure had its disadvantages. In the absence of opportunities to receive Parliamentary criticism he thought it right to issue this order in a tentative form and send it to all the boards of guardians and managers of districts chiefly concerned to give them an opportunity of making any criticisms they pleased. He believed it had been done with good results. The order had been carefully considered by the local authorities at a conference attended by delegates from every board of guardians concerned, and he had received more than one deputation on the subject. He had now little doubt that, in the final form in which he proposed that the order should be issued, it would command the support of the large majority of the local authorities concerned. He would point out that the great distinction between the recommendations of the report of the committee and the order of the Local Government Board consisted in this, that the committee recommended that a central body should be appointed to take over the charge and control of all the Poor-law children in all the Poor-law institutions in the metropolis, while the order contemplated the appointment of a central authority which was to take over the control of certain classes only of these children. The classes which they proposed should be handed over to the new authority were children suffering from ophthalmia and diseases of the eyes, from skin and scalp diseases, or from mental or physical infirmity, and children requiring the benefits of sea air and in homes for convalescents. His sympathies were entirely with those who disliked the barrack schools, and the policy of the Local Government Board had been for a long time to reduce them wherever possible. The transfer under the order of the classes of children he had named to the new authority was the first step towards facilitating changes in the size, and to some extent the very construction, of those great schools to which so much objection was taken. Very shortly after this report was published the Local Government Board instituted an inquiry by a very able expert (Professor Shaw) into the cubic space and ventilation in these barrack schools. He understood that this gentleman's investigations had been most careful and elaborate, and if the report which he was preparing was to the effect that the cubic space and the ventilation were inadequate, that would at once necessitate the reduction, and probably the very large reduction, of the number of inmates of these schools, and this would afford opportunities for possible alterations in their construction. He had been blamed because his proposals were opposed to the recommendations of the departmental committee; but he could not find in the report of the committee the slightest guidance as to what form the authority was to take, and he was therefore thrown entirely upon his own resources in devising the authority. However, in deference to the views of the committee, he had thought it right in the first instance to propose an entirely new authority instead of the present body, and so he issued an order in that form; but it was evident from the great number of objections the order evoked that there was a large preponderance of opinion in favour of the Metropolitan Asylums Board being made the authority, as against the creation of a new authority. He therefore willingly reconsidered the position. He thought the suggestion that the Metropolitan Asylums Board should be the authority was the best—first, because it avoided the difficulties and expense of creating a new authority; and, secondly, because the Metropolitan Asylums Board afforded in the Exmouth training ship, which was under its charge, the one conspicuous instance of success in the management of Poor-law children. He owned that at first he had some doubts as to whether the Metropolitan Asylums Board, with its numerous duties, would be able to undertake additional responsibilities; but after a series of communications with that body and interviews with its chairman it appeared to him that with some addition to its members it would be perfectly within its scope and capacity to undertake these new duties, and if it appeared to him that it was desired that that should be the final form the order should take, he would not hesitate to adopt a recommendation which had been made to him from many quarters.—Mr. Mundella, who was the next speaker, congratulated Mr. Chaplin on his decision, and after one or two more speeches the debate was brought to a close.

HOUSE OF COMMONS.

THURSDAY, MARCH 25TH.

Rabies in London.

Dr. Farquharson asked the President of the Board of Agriculture on what evidence the cases of canine hydrophobia recently reported in the metropolitan district were diagnosed; how often was the certifying surgeon able to base his conclusions on (1) symptoms observed during life, and (2) an examination of the nervous centres of the suspected dog by the scientific methods practised at the Brown Institute; and whether the department would in future require precise scientific detail before a dog is pronounced to be mad.—Mr. Walter Long replied that ten cases of rabies were reported in the metropolitan district during the first two months of the present year. In every case a post-mortem examination was conducted by the veterinary inspector of the local authority, whilst in two of the cases the dogs were seen alive by veterinary surgeons, and in two others inoculation experiments were made at the Brown Institute. It was essential that the declaration of disease should continue to be made by the veterinary inspector of the local authority as contemplated by the Act, but it was proposed that in each case a full report should be made by that officer for the information of the veterinary advisers of the Board of Agriculture.

The Medical Staff in Scotch Prisons.

Mr. Orr-Ewing asked the Chancellor of the Exchequer whether, in view of the fact that the salaries of Prison Commissioners and prison warders in Scotland and England had been conformed to the same rate of pay, he could state the reason why those of the chaplains and medical officers were not so conformed, the fact of a discrepancy unfavourable to Scotland having been pointed out by them to the Commissioners and the Secretary for Scotland.—Mr. Hanbury, Secretary to the Treasury, replied to the question, saying that the hon. member was wrong in his premiss; the salaries of the Prison Commissioners were not the same, nor were those of the prison warders. Without admitting that the pay should be the same when the circumstances were different, the Treasury had expressed its readiness to consider a redistribution of emoluments in the case of medical officers.—Mr. Orr-Ewing asked the hon. member whether, in view of the fact that the Estimates for the year contained no proposal to increase the salary of any superior officer in the Scottish prison service, he would explain to the House why the recommendations of the Secretary for Scotland on this subject had not received favourable consideration at the hands of the Treasury.—Mr. Hanbury said he did not know how the hon. member became aware of the confidential communications between the Scotch Office and the Treasury referred to in this question. The Secretary for Scotland made six proposals. Four of these were approved in full. One was approved in part; the Treasury gave the two extra medical men he asked for and made a suggestion as to re-arranging the salaries of the medical staff generally, instead of increasing the salaries of two in particular. The sixth request, that for increased pay to chaplains, was refused on the ground that it was not necessary.

Food Products Adulteration.

Mr. Jeffreys asked the First Lord of the Treasury whether his attention had been called to the evidence given by the influential deputation from the Central and Associated Chambers of Agriculture and other representative bodies, received by the President of the Board of Agriculture on March 2nd, that a Bill to give effect to the recommendations of the Select Committee on Food Products Adulteration would receive general support from all quarters of the House; and whether, under these circumstances, the Government would introduce and press forward such a measure in the present session.—Sir John Leng asked the right hon. gentleman whether he was aware that in large cities like London, Manchester, Birmingham, and Glasgow much objection was taken to a recommendation of the Committee on Food Products Adulteration directed against the free sale of a wholesome and nutritious article of food much used by the working classes; and whether, seeing that this recommendation was carried by a majority against the chairman of the Committee, who had described it in the House as of a highly contentious character, and in view of the numerous measures promised in Her Majesty's gracious Speech, he would defer the introduction of another Bill which would be keenly contested both in and out of Parliament.—Mr. Channing asked the right hon. gentleman whether he was aware that the deputation had the warmest support of members on both sides of the House.—Mr. Balfour said, in reply, that it was evident that the support which would be given to a measure of this kind would not at all events be universal. He could not at this moment make any promise as to the introduction or passage of such a Bill, but he would consult with the President of the Board of Agriculture as to whether in any case it might not be

desirable to bring in a Bill and read it for the first time, in order that the public might be able to judge of the character of the provisions which in the opinion of the Board of Agriculture it was desirable to introduce.

Clothing for the Army.

Mr. Powell Williams, Financial Secretary to the War Office, stated, in reply to a question by Captain Norton, that after March 31st the practice of giving out work to be executed in the workers' homes would be discontinued. This practice had been found to be very objectionable. The work was often done under conditions which were insanitary and which involved a liability to infection on the part both of the troops and of the workpeople at the clothing factory, while strong suspicion existed of sub-letting on terms which amounted to sweating. The number of people affected was forty-four women and three men. Some of the women were widows of soldiers. None of the work taken from these people would be given to sweating contractors, nor were any sweating contractors allowed to take War Office contracts. The work hitherto given out would be done in the factory, and all the workers in question who were under sixty-five years of age—(viz., thirty-six women and two men) would have the option of coming into the factory. Those who did not avail themselves of the option, or were over sixty-five, would receive a gratuity.

FRIDAY, MARCH 26TH.

The Death of Captain Byrne.

Sir John Colomb asked the First Lord of the Admiralty whether Captain Byrne, Royal Marine Light Infantry (since dead), was brought from Portsmouth to be treated at St. Thomas's Hospital for gunshot wounds received in action at Benin, because the Royal Naval Hospital, Haslar, was not supplied with the necessary apparatus for examination by the Roentgen rays; and if he would take the necessary steps to cause the chief naval hospitals to be furnished with the necessary appliances for the examination of wounds and for the scientific education of the surgeons of the Royal Navy.—Mr. Goschen replied that Captain Byrne, a most able officer, whose death was deeply to be deplored, went to St. Thomas's Hospital for treatment for a gunshot wound at his own request, expressed almost immediately after his arrival on board the hospital ship *Malacca* on Feb. 28th. This wish he reiterated most strongly on his arrival at Portsmouth. It had, so he was informed, no connexion with the question of the examination of his wound by Roentgen ray apparatus. The development of this new science was being closely followed by the naval medical authorities, and care would be taken as assured data were obtained to supply the naval hospitals with all necessary appliances. The naval hospitals were now authorised to have x ray radiographs taken when necessary.

Infectious Disease in Schools.

Lord Hugh Cecil asked the Vice-President of the Committee of Council on Education whether he was aware that the school of St. Stephen's, Lewisham, had suffered a serious temporary diminution of attendance owing to the fear of infectious disease; whether the managers of the school acted in accordance with the regulations of the Department in keeping it open in spite of what was an unreasonable panic; whether, seeing that the school would suffer severely in its grant in consequence, and that, under Article 101 of the Code, had it been closed the period in which it was so closed would not have been reckoned in calculating the attendance, the Education Department could discriminate in favour of a school in this position and allow it the full grant; and whether, if the Department had no such power, they would consider the propriety of applying to Parliament to extend their discretion in the matter.—Sir John Gorst said the facts were as stated, but the Committee of Council had no power to exercise the discretion suggested. The case was very exceptional, and the matter would be considered in connexion with next year's Code.

MONDAY, MARCH 29TH.

Swine Fever.

Admiral Field asked the President of the Board of Agriculture whether his attention had been called to a serious case of swine fever at Bishop's Waltham, on the estate of General Kirington, in November last, where sixty-six pigs of considerable value were ordered to be slaughtered by the local committee in the presence of an inspector acting under the Contagious Diseases (Animals) Act; whether he was aware that fifteen of the carcases were subsequently dressed with a view to being consigned to the Central Meat Market for sale in London, that five of the number were found to be affected with the fever spots and were subsequently buried, and that the remaining ten were nevertheless sent off to London for sale, although they came from the very same pen or stye as those diseased; and whether such action by inspectors was in accordance with the regulations of the Department after the owner had received an official notice that all the pigs in the styes affected were to be slaughtered and buried.—Mr. Walter Long replied that he was aware of the case to which his hon. friend referred, and he had caused full inquiry to be made respecting it. The sixty-seven pigs which were slaughtered by order of one of the Board's inspectors were killed, not because they were diseased, but because they had been exposed to infection, and as a matter of fact, none of them showed any signs of illness. Fifteen of the pigs were found to be fit for the butcher and were dressed accordingly, but on a further examination prior to the consignment of the carcases for sale six of them were found to be somewhat discoloured, and these were accordingly withdrawn and subsequently buried. Discolouration frequently arose from ordinary causes, and there was no evidence whatever that in this case it was due to the presence of swine fever. Under the Board's regulations the most stringent precautions were taken with a view to prevent meat unfit for human food from being consigned for sale, and in the case in question the carcasses sold were examined by a butcher on two successive days and were subsequently passed as sound by the sanitary inspector and the meat salesman on arrival at their destination.

Army Medical Staff.

Captain Norton asked the Under Secretary of State for War what steps he proposed to take in order to fill up the vacancies in, and complete the establishment of, the Army Medical Staff; and whether, in case of mobilisation, the Army Medical Staff was now sufficient for the medical needs of Army corps.—Mr. Brodrick said, in reply, that it was intended to give an increase of pay in India and a shorter tour of service there; assistance in forming medical messes at large stations; quarters in barracks where possible; and better opportunities for study on return from foreign service. One or two other matters affecting the Service were still under consideration. It was hoped that these additional advantages would increase the number of candidates for the Service. His answer to the second part of the question was in the affirmative.

Pleuro-Pneumonia in London.

Mr. Field asked the President of the Board of Agriculture whether another outbreak of pleuro-pneumonia contagiosa had occurred recently in London; whether this further outbreak and the result of investigations had satisfied the authorities that the disease was local and not imported; and whether Ireland had had a clean bill of health for live stock (excepting swine fever) for a much longer period than Great Britain.—Mr. Walter Long replied that it was the case that another outbreak of pleuro-pneumonia had occurred in London. So far as the inquiries of the Board had yet proceeded they had no reason to think that the disease was imported. It was the case that no outbreak of pleuro-pneumonia had been reported in Ireland for a much longer period than in Great Britain.

Disease among the Troops in India.

Lord George Hamilton, replying to a question by Sir James Fergusson, said that for some time past he had been in communication with the Viceroy on this subject, and he proposed to lay on the table of the House a despatch addressed to the Government of India, in which the views of Her Majesty's Government were stated at length.—Major Rasch asked the First Lord of the Treasury whether, in order to dispel misconception on this subject, he would give facilities for its discussion.—Mr. Balfour said he hoped and believed the despatch was of such a character as not to call for any debate in the House.

TUESDAY, MARCH 30TH.

The London Water Question.

Mr. Chaplin announced that the terms of reference to the Royal Commission on the London Water Question are as follows: 1. To inquire and report whether, having regard to financial considerations and to present and prospective requirements as regards water-supply in the districts within the limits of supply of the metropolitan water companies, it is desirable, in the interests of the ratepayers and water consumers in those districts, that the undertakings of the water companies should be acquired and managed either (*a*) by one authority, or (*b*) by several authorities, and, if so, what should be such authority or authorities. To what extent physical severance of the works and other property and sources of supply of the several companies, and the division thereof between different local authorities within the limits of supply, are practicable and desirable, and what are the legal powers necessary to give effect to any such arrangements. 2. If the undertakings are not so acquired, whether additional powers of control should be exercised by local or other authorities, and if so what those powers should be. 3. Whether it is practicable to connect any two or more of the different systems of supply now administered by the eight metropolitan companies, and, if so, by whom and in what proportions should the cost of connecting them be borne, and what are the legal powers necessary to give effect to any such arrangement.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.

ARNOLD, E. G. EMERSON, M.B., B.S., has been appointed a Clinical Assistant to the Chelsea Hospital for Women.

BAILEY, T. R., M.D., C.M. Edin., has been appointed Medical Officer for the Fourth Sanitary District of the Wolverhampton Union.

BARNES, E. H., M.B. Syd., has been appointed a Resident Medical Officer to the Sydney Hospital, New South Wales.

BOYAN, JOHN, M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Senior House Surgeon to the Western General Dispensary, Marylebone-road, London.

BRIGHT, R. S., M.R.C.S. Eng., has been appointed a Member of the Central Board of Health, Hobart, Tasmania.

BURKITT, G. O. E., L.R.C.P., L.R.C.S. Irel., D P.H., has been appointed Health Officer at Leaderville, Western Australia.

BURNIE, W. GILCHRIST, M.R.C.S. Eng., L.S.A. Lond., has been appointed Honorary Consulting Medical Officer to the Bradford Children's Hospital.

COLE, F. H., M.B., Ch.B. Melb., has been re-appointed Lecturer on Pharmacy to the Medical Students of the Melbourne University, Victoria, Australia.

DODS, JAS., L.R.C.P., L.R.C.S. Edin., has been appointed Medical Officer to the Brisbane United Friendly Societies, Queensland.

FOX, H. R., M.B. Melb., has been appointed Officer of Health for Leigh Shire, Victoria, Australia.

GARDINER, JOHN, B.A. Oxon, M.R.C.S. Eng., L.R.C.P. Lond., has been appointed House Surgeon to the Western General Dispensary, Marylebone-road, London.

GRANT, A. S., M.R.C.S., L.R.C.P., has been appointed a Clinical Assistant to the Chelsea Hospital for Women.

HARRIS, DAVID, M.B., M.S. Glasg., has been appointed Medical Officer to the Carmarthen Union and District No. 1.

HARRIS, W. H., M.B. Syd., has been appointed a Resident Medical Officer to the Sydney Hospital, New South Wales.

HARVEY, L. W., L.R.C.P., L.R.C.S. Edin. L.F.P.S. Glasg., has been appointed a Medical Officer to the Grenfell Hospital, New South Wales.

HERRIOT, S., L.R.C.P., L.R.C.S. Edin., has been appointed a Surgeon to the Bulong Hospital, Western Australia.

HONNYWILL, ALFRED ORAM, L.R.C.S., L.R.C.P., L.M. Edin., has been appointed Medical Officer to the Sutton District of the London, Brighton, and South Coast Railway Provident Society. Also Medical Referee to the Prudential Assurance Company.

HOPKINS, G. H., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed an Honorary Medical Officer to the Lady Bowen Hospital, Brisbane, Queensland.

ISBESTER, T., M.B. Adel., has been appointed a Resident Medical Officer to the Sydney Hospital, New South Wales.

JOHNSTON, A. A., L.K.Q.C.P. Irel., L.R.C.S. Edin., has been appointed a Public Vaccinator at Clifton Hill, Victoria, Australia.

KRUGER, C. H., M.B., C.M., has been appointed a Clinical Assistant to the Chelsea Hospital for Women.

LEY, G. J., M.B. Melb., has been appointed a Public Vaccinator at Chiltern, Victoria, Australia.

LININGTON, W. W., F.R.C.S. Eng., has been appointed Resident Casualty Officer to the General Infirmary, Leeds.

LYSTER, A. E., M.R.C.S. Eng., L.S.A., has been appointed Medical Officer and Public Vaccinator for the Fourth District of the Chelmsford Union, vice W. Hart, resigned.

MCCALLUM GAVIN, M.B., C.M. Glasg., has been appointed a Resident Surgeon to the Geelong Infirmary and Benevolent Asylum, Victoria, Australia.

MOIR, WM., M.B., Ch. M. Aberd., has been appointed Officer of Health for Mirboo Shire, Victoria, Australia.

PADBURY, G. J., M.B. Lond., L.R.C.P., M.R.C.S., has been appointed Medical Officer for the Hawkchurch Sanitary District of the Axminster Union.

PLOWMAN, S., F.R.C.S. Eng., L.R.C.P. Lond., has been re-appointed a Lecturer on Materia Medica to the College of Pharmacy, Victoria, Australia.

RIMMELL, A. T., M.R.C.S. Eng., L.R.C.P. Edin., has been appointed Medical Officer and Public Vaccinator for the Tydd, Sutton St. James, and Long Sutton Districts of the Holbeach Union.

RUDALL, J. F., M.B., Ch.B. Melb., M.R.C.S. Eng., has been appointed Officer of Health for South Gippsland Shire, Victoria, Australia.

SCOTT, C. H., M.B., Ch. M. Syd., has been re-appointed Medical Officer for the Bourke Hospital, New South Wales.

SEED, WM. P., L.R.C.P. Lond., M.R.C.S., has been appointed a Resident Physician to the Coolgardie Hospital, Western Australia.

SMITH, J. W., M.B. Edin., F.R.C.S. Eng., has been appointed Honorary Anæsthetist to the Victoria Dental Hospital, Manchester.

TAYLOR, E. CLAUDE, M.D., B.S. Lond., F.R.C.S. Eng., has been appointed Deputy Assistant Surgeon to the London Temperance Hospital.

TERRY, H., M.B. Syd., has been appointed a Resident Medical Officer to the Sydney Hospital, New South Wales.

THOMPSON, W. H., L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Honorary Medical Officer to the Bradford Children's Hospital.

TIDSWELL, F., M.B., Ch.M. Syd., D.P.H. Cantab., has been appointed a Demonstrator of Physiology to the Sydney University, New South Wales.

TILLEY, HERBERT, M.D., B.S. Lond., has been appointed Surgeon to the London Throat Hospital, Great Portland-street, for Diseases of the Ear, Throat and Nose.

TOTHILL, F. C., M.B., C.M. Edin., has been appointed Medical Officer for the Ashford Sanitary District of the Staines Union.

WARD, HOWARD P., M.B. Lond., M.R.C.S. Eng., L.S.A., has been appointed Assistant Physician to the Royal South Hants Infirmary, Southampton.

WATT, GEO., M.B., Ch.M. Aberd., has been appointed a Medical Officer for the Narrandera Hospital, New South Wales.

WATSON, A. E. H., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer for the Destitute Poor and Aborigines in the District of Port Germein, South Australia.

WESTMACOTT, F. H., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Honorary Anæsthetist to the Victoria Dental Hospital, Manchester.

WILLIAMSON, OLIVER K., M.B., has been appointed Junior Resident Medical Officer and Registrar to the Evelina Hospital for Sick Children, Southwark Bridge-road, London, S.E.

WILLMOT, ROBT., F.R.C.S. Edin., M.R.C.S. Eng., has been appointed an Official Visitor to the Hospital for the Insane, New Norfolk, Australia.

WRIGHT, THOS. N., L.R.C.P. Lond., M.R.C.S., has been appointed a Government Medical Officer and Vaccinator for the Police District of Port Stephens, New South Wales.

WRIGLEY, F. H., L.R.C.S. Edin., has been re-appointed a Medical Officer to the Glen Innes Hospital, New South Wales.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BRISTOL HOSPITAL FOR SICK CHILDREN AND WOMEN.—House Surgeon Salary £100 per annum, with rooms and attendance (not board).

COTFORD ASYLUM, near Taunton, Somerset.—Assistant Medical Officer, unmarried. Salary £120, with annual rise of £10 to £150, furnished apartments, board, attendance, and washing.

GENERAL INFIRMARY, Leeds.—Resident Surgical Officer. Salary £100 per annum, with board, residence, and washing.

GERMAN HOSPITAL, Dalston, N.E.—Honorary Ophthalmic Surgeon.

GUEST HOSPITAL, Dudley.—Resident Assistant House Surgeon for six months. Board, lodging, and washing in hospital provided.

HANTS COUNTY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £100 per annum, increasing to £125 after twelve months' service, with furnished apartments, board, washing, and attendance. Applications to the Committee of Visitors, Knowle, Fareham.

HOSPITAL FOR WOMEN AND CHILDREN, Leeds.—House Surgeon for twelve months. Salary £90 per annum.

LIVERPOOL HOSPITAL FOR CANCER AND SKIN DISEASES.—Honorary Assistant Surgeon.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Dental Surgeon.

MIDDLESEX HOSPITAL, W.—Assistant Surgeon. Also Aural Surgeon.

NEW SOUTH WALES.—Bacteriologist and Assistant to the President of the Board of Health of the Colony. Salary £600 per annum. Applications to Agent-General for New South Wales, 9, Victoria-street, London, S.W.

ROTHERHAM HOSPITAL AND DISPENSARY.—Assistant House Surgeon for six months. Board, lodging, and washing provided.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, London.—Pathological Curator of the Museum.

ST. SAVIOUR'S UNION, Surrey.—Medical Superintendent at the Infirmary, East Dulwich-grove, S.E. Salary at the rate of £400 per annum, with unfurnished house, coals, gas, and water. An annual percentage deduction from the salary and emoluments will be made according to the Poor-law Officers Superannuation Act, 1896. Applications to the Clerk, Union Offices, John-street West, Black friars-road, S.E.

SHEFFIELD UNION WORKHOUSE INFIRMARY.—Junior Assistant Medical Officer, unmarried, at the Workhouse Infirmary, Fir Vale, Sheffield, for six months. An honorarium of £12 will be granted, and furnished apartments, board, and washing provided. Applications to Clerk to the Guardians, Union Offices, West Bar, Sheffield.

SWANSEA GENERAL HOSPITAL.—House Physician for one year. Salary £50 per annum, with board, apartments, laundress, and attendance.

VICTORIA HOSPITAL, Folkestone.—House Surgeon. Salary £80 per annum, rising to £100, with board, residence, and washing.

WESTON-SUPER-MARE HOSPITAL AND DISPENSARY.—Medical Officer to the Provident Dispensary attached to the hospital. Salary £80 per annum, with board, lodging, and washing.

WOLVERHAMPTON EYE INFIRMARY.—House Surgeon, for six months. Salary at the rate of £70 per annum, with rooms, board, and washing.

Births, Marriages, and Deaths.

BIRTHS.

ARCHER.—On March 26th, at Hillfield-road, West Hampstead, the wife of Stafford L. Archer, M.R.C.S. Eng., L.R.C.P. Lond., of a daughter.

BREESE.—On March 24th, at Kennington-park-road, the wife of F. Breese, L.D.S., of a son.

CARLIER.—On March 26th, at Morningside-drive, Edinburgh, the wife of E. Wace Carlier, M.D., B.Sc., &c., of a daughter.

ECCLES.—On March 25th, at Harley-street, W., the wife of W. McAdam Eccles, M.S., F.R.C.S., of a son.

FORD.—On March 25th, at Kent-road, Southsea, the wife of Vernon Ford, Surgeon, of a daughter, stillborn.

OVEREND.—On March 15th, at Montgomery-terrace-road, Sheffield, the wife of Wilkinson Overend, B.A., M.B. Oxon., of a daughter.

RUSSELL.—On March 24th, at Plas tan Altran, Holyhead, the wife of William Fox Russell, M.B., of a son.

WILSON.—On March 25th, at Sydney House, Blackrock, County Dublin, the wife of S. Wesley Wilson, Physician and Surgeon, of a son.

MARRIAGES.

CRAWFORD—CAMPBELL.—On March 25th, at the Catholic Apostolic Church, Dundee, Douglas Crawford, M.B., F.R.C.S., of Liverpool, to Edith Violet, youngest daughter of Walter Campbell, South Tay-street, Dundee.

FORRESTER—HENDERSON.—On March 25th, at Mayfield Free Church, Edinburgh, Harvie Anderson Forrester, M.B., C.M., third son of the late William Forrester, of Arngibbon, Perthshire, to Helen Isabella Rhind, second daughter of the late Frank Henderson, M.P., Dundee.

FULLERTON—WISE.—On March 25th, at St. Peter's, Bournemouth, Robert Fullerton, M.D., of Glasgow, to Lucy Kate Lloyd, elder daughter of William Lloyd Wise, J.P., of Wimbledon and Southend-on-Sea.

ROBINSON—HOPE.—On March 27th, at St. Martin's Church, Guernsey, Clement Sumner Robinson, Surgeon-Captain, A.M.S., h.p., youngest son of the late Rev. C. D. P. Robinson, to Gertrude, fourth daughter of S. T. Hope, of Les Douvres, St. Martin's, Guernsey.

DEATHS.

GUINNESS.—On March 9th, at Selkirk-parade, Cheltenham, Arthur Guinness, M.D., aged 84.

HARRIS.—On March 18th, at Dover, Florence, the beloved wife of Surgeon-Major F. A. Harris, Army Medical Staff.

HICKMAN.—On March 27th, at Harley-street, W., William Hickman, D.L., J.P., F.R.C.S., Surgeon-in-Ordinary to H.R.H. the Duke of Saxe-Coburg-Gotha, in his 61st year.

HOWITT.—On March 29th, Francis Howitt, M.D., of Nottingham, in his 61st year.

HUDSON.—On March 29th, at his residence, Harley-street, W., Charles Elliot Leopold Barton Hudson, F.R.C.S., in his 35th year.

KENT.—On March 25th, at Cardigan-road, Richmond-hill, Thomas John Kent, M.R.C.S., of Piccadilly, in his 74th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, April 1st, 1897.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Dry Bulb	Wet Bulb.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp	Rainfall.	Remarks at 8.30 A.M.
Mar. 26	29·83	S.W.	51	50	73	57	50	0·09	Overcast
,, 27	29·61	W.	52	48	85	59	50	0·05	Overcast
,, 28	29·59	S.W.	52	49	69	56	48	0·13	Cloudy
,, 29	29·39	N.W.	43	40	87	51	40	...	Cloudy
,, 30	29·62	SSW	37	35	79	54	35	...	Foggy
,, 31	29·37	S.W.	47	45	77	53	37	0·52	Cloudy
April 1	28·98	N.E.	36	35	51	39	35	...	Raining

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (5th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M., Ophthalmic 1.15 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), St. Mark's (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), Westminster (2 P.M.).

TUESDAY (6th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (2 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.).

WEDNESDAY (7th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.).

THURSDAY (8th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.)

FRIDAY (9th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M., Ophthalmic 10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.).

SATURDAY (10th).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Cancer (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (5th).—ODONTOLOGICAL SOCIETY OF GREAT BRITAIN (40, Leicester-square, W.C.).—8 P.M. Paper:—Mr. A. H. Smith: The Microscopical Aspect of certain Lesions induced by Dental Caries. A Demonstration of the Use of Choquet's newly-invented Microtome will be given by the reader of the paper.

WEDNESDAY (7th).—OBSTETRICAL SOCIETY OF LONDON.—8 P.M. Specimens will be shown by Mr. Targett, Dr. D. Robinson and others. Papers:—Dr. G. F. Blacker: The Treatment of Placenta Prævia by Champetier de Ribes' Bag.—Dr. T. Wilson: Chronic Axial Rotation of an Ovarian Cyst giving rise to Extreme Twisting of the Elongated Uterus.

THURSDAY (8th).—SOCIETY FOR THE STUDY OF INEBRIETY (11, Chandos-street, Cavendish-square, W.)—3.45 P.M. Papers: Dr. C. R. Drysdale: Alcohol in Therapeutics *vs* Inebriety.—Rev. A. K. Cherril: Are Acquired Characters Transmissible?

FRIDAY (9th).—CLINICAL SOCIETY OF LONDON.—8.30 P.M. Mr. H. Marsh: A Case of Sarcoma of the Prostate Gland.—Mr. R. Johnson: Multilocular Ovarian Cyst in a Child of five years, Axial Rotation, Ovariotomy.—Mr. W. G. Spencer: Hydatid Cysts removed from the Left Pleura, from behind the Mesentery, and from the Right Lobe of the Liver.—Mr. C. B. Lockwood: A Case of Wound of the Mesentery with subsequent Gangrene of the Intestine.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (5th). — THE SANITARY INSTITUTE (Parkes Museum, Margaret-street, W.).—8 P.M. Prof. T. R. Smith: Sanitary Building Construction.

TUESDAY (6th).—ROYAL COLLEGE OF PHYSICIANS—5 P.M. Dr. H. C. Bastian: Some Problems in Connexion with Aphasia and other Speech Defects. (Lumleian Lecture.)

LONDON POST-GRADUATE COURSE.—Bethlem Hospital, 2 P.M., Dr. Craig: Moral and Impulsive Insanities, and Lunacy Law.—Hospital for Skin Diseases, Blackfriars, 4.30 P.M., Dr. Abraham: Lupus Erythematosus.

WEDNESDAY (7th).—THE SANITARY INSTITUTE (Parkes Museum, Margaret-street, W.).—3 P.M. Dr. Louis Parkes (conducted by): Inspection and Demonstration at the Disinfecting Station, Chelsea. 4 P.M. Inspection of the West London Paper Mill Company's Works, Fallopian Wharf, Lot's-road, Chelsea. 8 P.M. Discussion, opened by Mr. H. R. Kenwood, on Notification of Measles.

LONDON POST-GRADUATE COURSE.—Parkes Museum, Margaret-street, W., 4.30 P.M., Prof. A. Wynter Blyth: Disinfection and Disinfectants.

THURSDAY (8th).—ROYAL COLLEGE OF PHYSICIANS.—5 P.M. Dr. H. C. Bastian: Some Problems in Connexion with Aphasia and other Speech Defects. (Lumleian Lecture.)

THE SANITARY INSTITUTE (Parkes Museum, Margaret-street, W.).—8 P.M. Mr. J. W. Clarke: Details of Plumbers' Work.

FRIDAY (9th).—LONDON POST-GRADUATE COURSE.—King's College, 3 to 5 P.M., Prof. Crookshank: Tetanus, Rabies, and Cholera.

SATURDAY (10th).—THE SANITARY INSTITUTE (Parkes Museum, Margaret-street, W.).—2.30 P.M. Mr. C. Jones (conducted by): Inspection and Demonstration at the Sewage and Destructor Works, Ealing.

Notes, Short Comments, and Answers to Correspondents.

EDITORIAL NOTICE.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND, WHEN ACCOMPANIED BY BLOCKS, IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

LIFE ASSURANCE AND PROVISION FOR OLD AGE.

WE have received the prospectus issued by the Acme Insurance Company for "Health, Endowment, and Life Assurance," the life part of which novel combination is to be carried out by the English and Scottish Law Life Association. From the nature of the risks and contingencies which it provides against the company appears to meet the requirements of professional men. Its scheme of operations seems to include some new features devised for the purpose of arriving at an economical method of securing the protection of income during incapacity, a provision for advanced life, and, thirdly, in the event of premature decease, the return of outlay made to secure the first two objects. Table III. provides what really amounts to endowment assurance payable at the age of sixty-five years, the added cost for which shows the rate for this important part of the contract to be far below those usually current. This means of making provision for advanced life at a relatively small outlay will no doubt attract much attention, and the company in its exposition of the details of the scheme claims that it is quite an innovation in assurances of this description. Among the tables is one affording thore whose income is not immediately affected by incapacity deferred benefits at reduced rates. It has hitherto been a condition in all benefit societies to insist on rigid confinement to the house as the only evidence of incapacity that would be admitted, and full benefits could be obtained only on these terms, but the Acme Company is willing, on application being made, to relax this regulation so far as to allow a health resort to be visited during convalescence. The company proposes to pay adequate fees for the requisite medical examinations, and stipulates that the admission of any claim shall be conditional on the production of proper certificates from duly qualified medical practitioners. The offices of the Company are at 14, Norfolk-street, Strand, W.C.

THE HOSPITAL OF ST. FRANCIS OF ASSISI.

ST. FRANCIS was undoubtedly one of the world's heroes, but we do not quite see what the proposed hospital to be founded in his name is going to do. According to the prospectus it is to be "A protest of the world against inhumanity. A revolt of the awakening soul against the crushing horrors of vivisection. An aspiration after the Divine gentleness." This is all very well but are the authorities going to eliminate from their methods of treatment all matters that have been discovered by experiments on animals? To be consistent they should do so, and in that case the action of the heart, the circulation of the blood, and many other physiological truths will be still unknown to them. The language of the prospectus is marvellous - thus we are told that the new hospital shall rise "a pure and peaceful temple, with its base amid the sorrows of creation and its lofty minarets within the eternal sympathy of the Creator." Why "minarets"?

H. S.—It is important that the profession should approach the solution of these questions which concern them as a whole in a spirit of conciliation.

THE VALUE OF CREOLIN INHALATION.

To the Editors of THE LANCET.

SIRS,—Inhalations of the vapour given off from boiling creolin have in my hands proved beneficial in bronchial asthma. I use a large test tube about five-eighths of an inch in diameter, and boil some three drachms of creolin in it over an ordinary spirit lamp. The patient sits with his mouth wide open a foot or eighteen inches from the tube and inhales the vapour which comes off, mixed, of course, with air. The inhalation is kept up for from one to ten or fifteen minutes, according to circumstances. I repeat this inhalation daily for a month or six weeks. Obviously the greatest care is required, for it would, I suppose, be possible to suffocate a person if sufficient air were not inspired with the vapour; but I have only once seen any ill effect (and that only temporary) from this treatment. In that case—one of chronic laryngeal catarrh—the patient, who had never before taken the inhalation, almost collapsed after some five minutes of the treatment, but he was quickly restored on removal to the fresh air. In this case, too, the inhalation was repeated daily without any tendency to collapse, and the complaint was completely cured by this treatment. I have found it necessary to observe the following precautions:—(1) The inhalation should *not* be given during a paroxysm of asthma (its effect is on the condition of the lung itself, not, so far as I know, on the paroxysm, just, I imagine, as that of creolin is on the skin in certain cutaneous eruptions); (2) the temperature of the patient should not be above normal; (3) the inhalation should not be administered by an irresponsible person; (4) during the first week of treatment the inhalation should be given for one minute only on each day; (5) should the patient become faint or complain of giddiness the inhalation must be discontinued at once, and the patient removed into the fresh air; and (6) care must be taken that the vapour (which is very inflammable) does not catch fire, and that the liquid does not boil over. In November, 1894, to ascertain if this treatment could be safely adopted, I tried the effect of an inhalation on myself. I have since then treated various affections of the air passages in this way, and have obtained the best results in bronchial asthma.

I am, Sirs, yours faithfully,

Burton-on-Trent. DIGBY F. B. COTES, M.R.C.S.Eng., L.S.A.Lond.

Hypatia.—(1) Messrs. Baird and Tatlock, Cross-street, Hatton-garden (2) Woodhead's Bacteriology and the handbooks of Kanthack and Drysdale; and (3) Leitz or Zeiss with an oil immersion.

THE CORSET QUESTION.

MADAME GACHES-SARRAUTE, M.D., the deviser of the rational corset, is indefatigable. In THE LANCET, Dec. 5th, 1896, at page 1655, we gave a brief description of the appliance which this lady is endeavouring to render equally acceptable to dressmakers and hygienists, and now we learn that in order to be thoroughly up to date she has enlisted the x rays on behalf of her invention. At a recent meeting of the Académie de Médecine Dr. Laborde exhibited a series of three radiographs, one taken from the nude, another representing a woman wearing a Gaches-Sarraute bodice, and the third the same person constricted by a corset of the ordinary kind. The effect on the learned academicians is said to have been altogether conclusive, but it remains to be seen whether the ladies themselves will be as easily convinced. The desire for a taper waist is so deeply implanted in the female mind that even the startling testimony to the evil consequences of tight lacing thus unexpectedly afforded may prove of little avail.

DUPLICATE MEDICAL PERIODICALS.

To the Editors of THE LANCET.

SIRS,—The Bristol Medical Library has a large number of duplicate periodicals which it will have much pleasure in giving to any library that needs them for completing sets. I am, Sirs, yours truly,

L. M. GRIFFITHS, Hon. Librarian.

Bristol Medical Library, University College, Bristol, March 27th, 1897.

PITY THE POOR MEDICAL OFFICER OF HEALTH.

OUR contemporary, the *Pall Mall Gazette*, in its issue of March 24th, has an amusing article called "The Situation at Sureton-in-the-Mud." Sureton was a little village recently dowered with a parish council and other democratic blessings. The village also rejoiced in the possession of two medical men, of whom the senior was elected "Medical Officer of Health for the Sureton-in-the-Mud division of the Wyck-on-the-Wold Rural District Council." This office though imposing enough in name carried with it duties which, as a rule, do not generally fall to the lot of a medical officer of health, for "the Doctor was at the beck and call, at any hour of the day or night, of any free and independent elector or of any member of the family who might happen to feel indisposed." Not to make too long a story of it, the medical officer began to make rude and officious inquiries into the water-supply, and the authorities of Sureton, though ready enough to root up well-tried and beneficent institutions, naturally objected, and when, after eight years' persistent agitation, the Red Tape Offices exhorted the Sureton authorities to amend their water-supply the said authorities were scandalised. Thereupon a councillor, remembering that the appointment of medical officer of health was an annual one, proposed to oust the holder at the forthcoming election and to elect the other medical man, a new comer, who also chanced to be a friend of his (the councillor). The article proceeds:—

> "The situation was explained to me by an eminent councillor whom I found hanging over the railings on the bridge spanning the Sure, expectorating meditatively into the water. This pursuit seemed to be his chief occupation.
>
> "'No, my young sir, I don't say but what the Doctor 'asn't performed 'is dooties satisfact'ry; I don't say but what 'e is hequal to 'is job (he had been a gold medallist or something of the kind of his University) but what I do say is, that being medical horficer 'e 'as no call to go a-snuffling about the drains for to raise the rates of the parish.'
>
> "'But the outbreak of typhoid?'
>
> "'That's what 'e's there for. If there wasn't no typhoid we shouldn't want no medical horficer, should us? It stands to reason.'
>
> "'I remember his driving over to Wyck, which is beyond his ten-mile radius, and sitting up through that bitter night with Sally Lane. I remember him sending port wine to ——'
>
> "'Now you are trying to come it with the gratitoode game. Why, bless us! You might as well talk about gratitoode to the parson. What is the likes of them paid for?'
>
> "'But if the County Council and the Board in London insist on a water-supply, whether you kick the Doctor out or not it will have to come."
>
> "'I don't say but what that is likely enough. But we can take the title—the happellation—away from the Doctor, and Lawyer Timmins says as 'ow that will play 'ole 'Arry with 'is privit practice. We'll learn him 'ow to come interfering with our water and sending up the rates. Jones 'll know better, however.'"

Mr. J. E. Tuke is thanked for his reply.

"ANTISEPTIC MIDWIFERY."

To the Editors of THE LANCET.

SIRS,—I have followed the correspondence on this subject in the columns of THE LANCET with deep interest. The principal question your writers ask is which is the best antiseptic. I think the first thing to be decided is, should we in general practice go in for so-called antiseptic midwifery at all? By which I mean the use of the uterine and vaginal douche. For my part, I have attended over 1000 cases in London and only used the douche three times, and have not yet had a fatal case or one of puerperal fever. I never use mercury in any form and only take the precaution of putting my hands and instruments into a hot solution of permanganate of potash before introducing them into the womb. It would be interesting to compare results in general practice of so-called "antiseptic midwifery" with that in which antiseptics take a minor place. I am, Sirs, yours truly,

Tufnell-park-road, N., March 26th, 1897. CHAS. DISNEY ROE.

Mrs. Charlotte E. Field.—The circumstances should be brought to our attention by the consultant.

THE PROTECTION OF BIRDS.

THE Society for the Protection of Birds is a most praiseworthy one; it not only strives to prevent the destruction of birds for the ornamentation of human beings, but also any wanton destruction. There is nothing so annoying as to read in the paper, as we only too often do, "A fine specimen of the now rare bird —— has been shot by ——"—some "sportsman" who ought to know better. Many a bird formerly common in England might be so again if it were not for this insensate custom. The bearded tit is almost extinct, the bustard quite so, and the bittern, the ruff, the rose-coloured pastor, and the golden eagle are hardly ever seen, though the last is not so uncommon as the others. The secretary of the society is Mrs. F. E. Lemon, Hilcrest Redhill, Surrey.

AMERICAN VIEWS OF HOSPITAL AND DISPENSARY ABUSE.

THE abuse of medical charities is becoming as burning a question in New York as it is in London. The *New York Medical Record* of March 6th contains two articles on the subject, one a paper on the Dispensaries of New York, their Use and Abuse, by Walter Brooks Bronner, A.B., M.D., New York. In this paper Dr. Bronner shows that at these institutions 707,058 patients were treated, who made in all 2,026,360 visits, and 1,039,632 prescriptions were filled, for which a fee ranging from ten to twenty-five cents was charged in the vast majority of cases in all the forty-four institutions, excepting those under the Department of Charities and the North-west Dispensary. On a conservative estimate 40 per cent. were able to pay a doctor. Dr. Bronner absolves the people from blame and blames the profession. The subject was also discussed at a special meeting of the New York County Medical Association, where the same views prevailed as to the culpability of the profession, including its heads. One speaker quoted the case of a woman who was advised to give her child fresh air by riding in a ferry boat, and replied that she intended to make a voyage to Europe, which she thought would be better. We hope most of the other statements at this meeting are more reliable than that of Dr. Freudenthal, who said that in London everybody applying at a clinic had to bring a certificate of poverty from his landlord! Our contemporary in a leading article says the situation is a serious one, and that the number of patients treated who are undeserving of charity is simply appalling. What is wanted is organisation and discipline in the profession.

Mr. W. J. Dixon is advised to consult his regular medical attendant.

"BLOOD ERYTHEMA."

To the Editors of THE LANCET.

SIRS,—I notice that the eruption so-named is mentioned and discussed in THE LANCET of March 20th, and the view is there expressed that it is in all probability due to idiosyncrasy on the part of the subject. I have, however, twice noticed this eruption on the back of my own hand and wrist after having washed off dried arterial blood after operations. There are two points which I should like to mention here regarding the etiology of this condition. 1. The fact of its having occurred only on two occasions in my case in the course of about 100 operations seems to favour the view that there must be some peculiarity in the patient's blood, unless the operator is immune at times and not at other times. 2. May not the application of turpentine, corrosive sublimate solution, and other antiseptics possibly act as remote causes of this peculiar condition?

I am, Sirs, yours truly,

VINCENT BURROW, M.B., B.S.Durh.

Lancaster-road, W., March 25th, 1897.

Dr. S.—The details which our correspondent gives certainly indicate unprofessional conduct, but we could not comment upon such matters until we knew that no explanation was forthcoming from the other side. Dr. S. may have been misinformed.

A NEW METHOD OF HYSTERECTOMY.

MR. R. HUGH HODGSON suggests a new mode of procedure in cases of hysterectomy in which it is deemed desirable to retain the cervix. His recommendation is based upon experiments performed on the dead body. After having tied the ovarian and uterine arteries and divided the broad ligaments close to the uterus, the peritoneum being saved as much as is deemed necessary for the subsequent stages of the operation, the cervix is cut through about the level of the internal os and ligatures passed through the cut edges of the broad ligaments and peritoneum and left in long loops. Then the cervical canal having been dilated per vaginam, the end of a pair of long forceps is passed up through it into the abdominal cavity, and the loops of the ligatures seized and drawn upon until the edges of the broad ligaments and peritoneum are within the vagina, where they are then packed with iodoform gauze, as is the practice followed by Mr. Bowreman Jessett in his pan-hysterectomies. The advantage of this disposal of the stumps over the usual methods of either sewing the peritoneum together over it, submitting it to the serre-nœud, or stitching it to the abdominal wound, is claimed to be that there is absolutely no raw surface left in the floor of the pelvis, no loop formed between the abdominal wall and the stump, and no abnormal traction on the abdominal wall.

Mr. V. C. Mallard.—The idea is a kindly one.

THE MATERNITY CHARITY AND DISTRICT NURSES' HOME, PLAISTOW, E.

THIS institution does excellent work among the poor of Plaistow and West Ham. The district is on the outskirts of East London, and the population consists almost entirely of the labouring class. The committee of the charity makes an urgent appeal for subscriptions and donations, which may be sent either to the treasurer, Mr. Robert Williams, Howard's-road, Plaistow, E., or to the bankers, Messrs. Williams, Deacon, and Co., 20, Birchin-lane, E.C.

MALE NURSES' (TEMPERANCE) ASSOCIATION.

WE have on various occasions referred to the desirability of employing male nurses in certain cases both of bodily and mental disorder. It is satisfactory to find that this view is extensively adopted, one proof of which is that the Male Nurses' (Temperance) Association is at present finding constant work for nearly 100 men, and that last year each man's average earnings were £101 18*s.* after paying all expenses. A large number of the nurses and travelling attendants are fulfilling engagements on the Continent, and in America, India, the Colonies, Egypt, and South Africa. The offices of the association are at 10, Thayer-street, Manchester-square, W.

Mr. Clement H. Sers.—We regret that pressure on our space makes it absolutely impossible for us to publish so long a communication.

"THE DOSE OF IPECACUANHA."

To the Editors of THE LANCET.

SIRS,—Referring to my letter published in THE LANCET of March 13th, wherein I stated that I had steadily taken six times the customary dose of ipecacuanha wine without perceptible effect of any kind, I have since been informed by more than one leading pharmacist that it has for long been known to pharmacists that the process now directed in the British Pharmacopœia for preparing ipecacuanha wine is bad. They say that the alkaloids extracted by an acetic menstruum are destroyed by being heated with that menstruum on evaporation. This, they say, is the cause of the inactivity of the present official preparation. The result I obtained clinically has therefore for long been ascertained pharmaceutically.

It seems that the favourite remedy for the most widely fatal disease in this country is practically inert. In the dose in which it is commonly prescribed it is absolutely inert, provided it be prepared in the only manner in which the Medical Council permits it to be prepared.

I am, Sirs, obediently yours,

BALMANNO SQUIRE.

Weymouth-street, Portland-place, W., March 22nd, 1897.

To the Editors of THE LANCET.

SIRS,—Dr. Balmanno Squire's letter on the above subject in THE LANCET of March 13th brings forward in medical literature a point which has been the subject of no little investigation in pharmacy. In a paper (*Pharmaceutical Journal*, 3, xx., p. 254) it was shown that following the process of the British Pharmacopœia, 1885, a considerable proportion (nearly a quarter) of alkaloids present in the root, though completely extracted by the acetic solvent, was destroyed by subsequent treatment—viz., evaporation to dryness before solution in sherry. It was shown that the process of the British Pharmacopœia, 1867, from the point of view of alkaloidal content and medicinal activity, was superior to that of the 1885 edition. In the paper referred to a process was detailed for the preparation of a standardised liquid extract of ipecacuanha, from which, by simple dilution with sherry, a wine of constant alkaloidal content could be obtained, and it is found that a dose of five minims of this wine has marked expectorant effect. The advantages of this standardised liquid extract and wine have been so widely recognised and its use so generally adopted that it must unquestionably have come under the notice of those who have charge of the compilation of the new British Pharmacopœia.

I am, Sirs, yours truly,

March 23rd, 1897. JOHN C. UMNEY.

Dr. John Love's communication will receive attention.

THE MILK STERILISING APPARATUS OF DR. POPP AND DR. BECKER.

A CORRESPONDENT writes:—"I shall be glad if any of your readers can inform me where I might get some independent opinion with regard to the apparatus invented by Dr. Popp and Dr. Becker for sterilising milk."

During the week marked copies of the following newspapers have been received:—*Essex County Standard, Hull News, Norfolk Chronicle, Wolverhampton Chronicle, Wigan Observer, Southampton Times, Lowestoft Standard, Times of India, Kidderminster Shuttle, Pioneer Mail, Manchester Guardian, Folkestone Express, Rochester Journal, South Wales Daily News, Bradford Observer, Builder, Sussex Daily News, Walsall Advertiser, Hastings News, Liverpool Daily Post, Newcastle Chronicle, Derbyshire Times, Bedford Standard, Lichfield Mercury, Worcestershire Chronicle, Oban Times, Western Morning News, Architect, Rochdale Observer, Middlesex Courier, Birmingham Post, Leeds Mercury, Keene's Bath Journal, Leicester Post, Hereford Times, South Eastern Gazette, Windsor Chronicle, Yorkshire Post, East Anglian Times, Glasgow Evening News, Midland Counties Express, Sheffield Independent, Bristol Mercury, Chatham News, Bexhill-on-Sea Observer, Bury Guardian, Scotsman, Local Government Chronicle, Reading Mercury, City Press, Mining Journal, Hertfordshire Mercury, Weekly Free Press and Aberdeen Herald, Surrey Advertiser, Local Government Journal, Australian Medical Gazette, Sheffield Daily Telegraph, Western Mail, Sevenoaks Chronicle, West Middlesex Herald, Burton Chronicle, Aberdare Times, Jersey Weekly Press, &c., &c.*

Communications, Letters, &c., have been received from—

A.—Prof. J. G. Adami, Montreal; Messrs. Armbrecht, Nelson, and Co., Lond.; Anglo-Swiss Condensed Milk Co. Lond.; Apothecaries' Hall, Dublin, Sec. of; A. F., Lond.; Mons. J. Astier, Paris.; Another M.R.C.S., L.S.A., Bournemouth.

B.—Dr. V. Burrow, Lond.; Dr. Palemon Best, Louth; Mr. W. H. Bennett, Lond.; Buxton Urban District Council, Clerk of; Beta, Grimsby; Messrs. Burgoyne, Burbidges, & Co., Lond.; Messrs. Burroughs, Wellcome, and Co., Lond.; Dr. H. C. Bastian, Lond.; Dr. Buchanan, Lond.; Bristol Hosp. for Sick Children, Sec. of; Sir Wm. Broadbent, Lond.; T. B. Browne, Ltd., Lond.; Beck Brewing Co., Liverpool, Sec. of; Bristol Medical Library, Hon. Librarian of; Mr. C. Birchall, Liverpool; Messrs. W. F. Brown and Co., Montreal; Bradford Infirmary, Sec. of.

C.—Dr. J. R. T. Conner, Lond.; Dr. F. H. Champneys, Lond.; Hon. S. Coleridge, Lond.; Dr. F. E. Carey, Guernsey; Prof. M. Charteris, Glasg.; Dr. J. Clarke, Glasg.; W. F. Collings, Sark; Mr. J. T. Clarke, Negri, Sembilan; Chemists' Cycle Supply Co., Coventry; Messrs. Crossley, Moir, and Co., Lond.; Messrs. Cassell and Co., Lond.; Cortland Wagon Co., Lond.; Messrs. Childs and Co., Lond.; Chelsea Hosp., for Women, Lond.; Mr. J. Cox, Montreal; Sir Savile Crossley, Lond.; Dr. E. Casey, Windsor; *Le Courrier de la Presse*, Paris; Church Army, Lond., Central Committee of; *Canada Lancet*, Toronto, Manager of; Messrs. T. Christy and Co., Lond.; Chamberlain Medicine Co., Des Moines, Iowa, U.S.A.; Mrs. A. M. Campbell, Lond.; Dr. R. Craik, Montreal.

D.—Dr. T. V. Dickinson, Lond.; Dr. D. d'Esterre, Lond.; Mr. Dixon, Barnes; Dalu-Kola Tea Co., Lond.; D., Birmingham; Mr. J. Davis, Pontypridd; Dr. F. Dittmar, Glasg.; Mr. A. C. Dowell, Lond.; Derby Royal Infirmary, Derby, Sec. of; Mr. W. T. Deeks, Shanklin; Messrs. Down Bros, Lond.; Mr. T. Dixon, Lond.; D. P. H., Lond.; Dr. A. T. Davies, Lond.

E.—Mr. J. W. Eastment, Surbiton; Examination Hall, Lond., Sec. of; Dr. C. J. Edgar, North Hatley, Province of Quebec; Dr. L. Edmonds, Harwich, Mass., U.S.A.

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